

Inside: Brian Van Bower on Hot Water Havens

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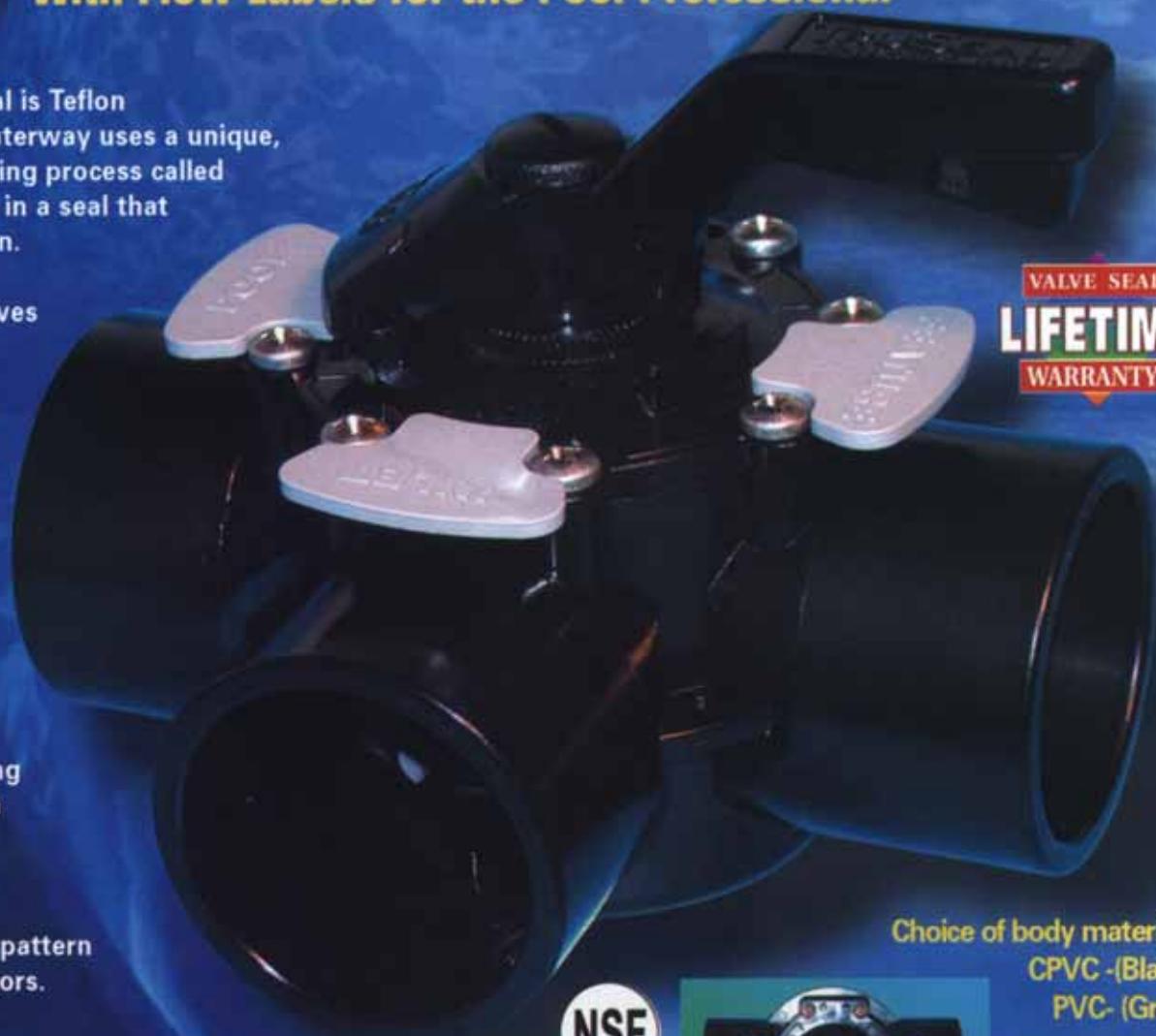


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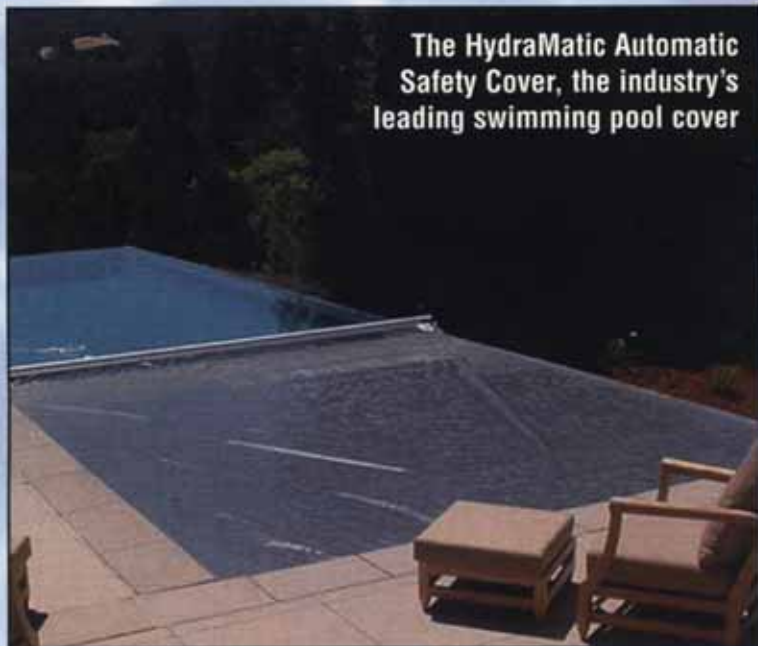




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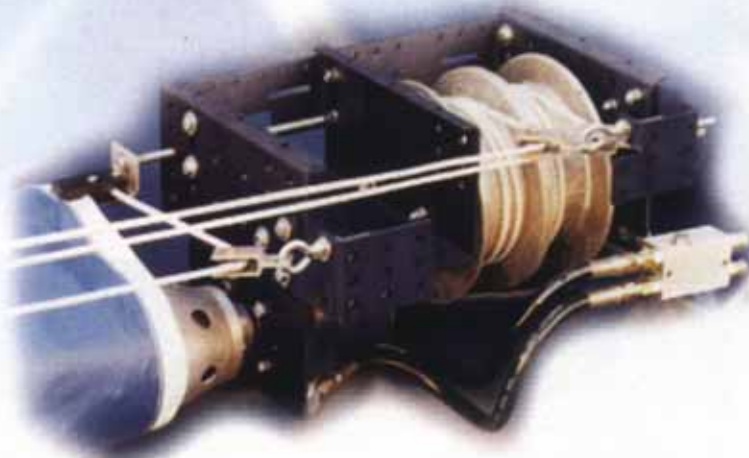
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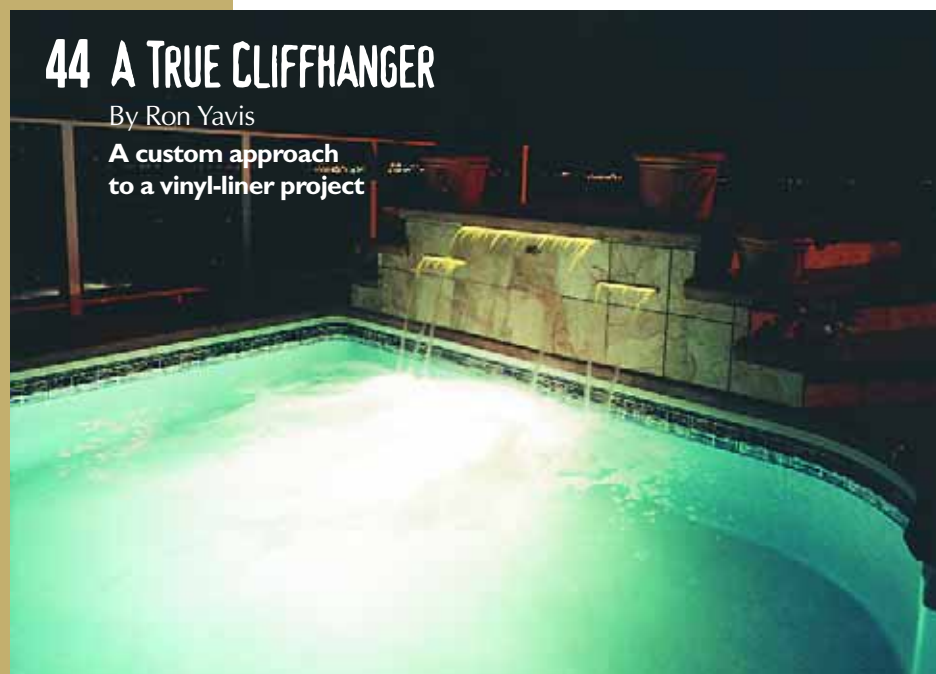


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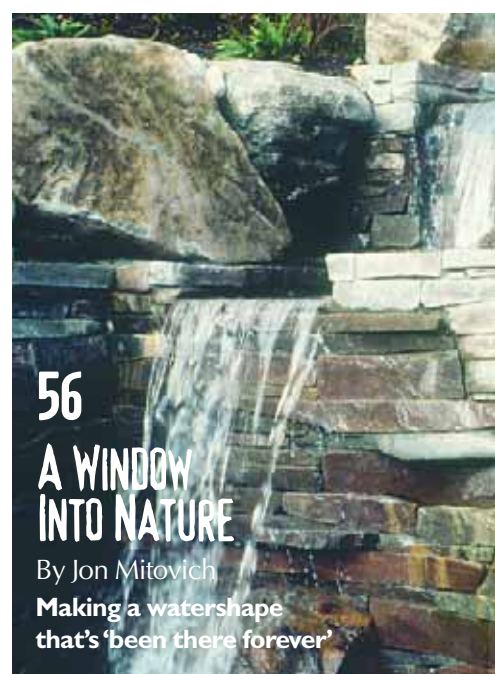
**Building to suit  
a designer's vision**



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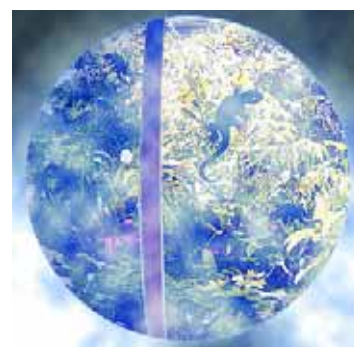
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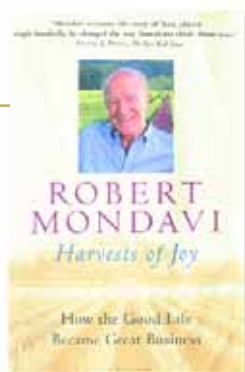


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**Photo Martha & Randy Beard, Pure Water Pools, Costa Mesa, Calif.**

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SOUND  
SOLUTIONS

By Robert Jechart

**Tracing development  
of a novel pool alarm**





## Beneath the Scene

*"All art is but imitation of nature."*  
— Seneca

It's wonderfully ironic that so many of the greatest expressions of human creativity and productivity are those that derive themselves wholly or in large measure from nature.

This collision between the man-made and its natural models has been explored by great minds throughout history and is expressed in all of the arts, from painting and architecture to music and watershaping. Whether it's cave drawings or Fallingwater, Beethoven's Sixth or some of the most appealing projects we've displayed in these pages, the objective of the creative effort is often to find a direct way to express a sense of the natural world.

On page 56 of this issue ("A Window into Nature"), nature and humanity splash together as Jon Mitovich of Roman Fountains profiles a behemoth watershape sculpted onto the grounds of Microsoft's corporate headquarters in Bellevue, Wash. I'll leave it to you to read the article and gain a detailed appreciation of this amazing work of art; suffice it to say here that the design and construction team has created a remarkable facsimile of a mountain stream that directly reflects and is clearly influenced by the astonishing natural beauty of Washington state.

What I find inspiring and informative about Mitovich's account of his company's role in the work is the notion that everything his firm did on the project was meant to be entirely invisible. In fact, the sole aesthetic mission for the complex circulation system was to create a visually authentic flow of water within a carefully designed stream course, with everything done so that anyone viewing the stream would completely forget about the technology that dominates our modern world (as well as this particular watershape).

On one level, this speaks to a remarkable flexibility on the part of the staff at Roman Fountains, given that much of the company's focus is on creating water effects that leap, dance, spray and generally create glorious and entertaining (and obviously man-made) spectacles. On another and deeper level, the notion that a state-of-the-art "display" system would be made only to vanish into the scenery has much to say about the selflessness and sophistication that true and deliberate naturalism can require.

Of course, there is another irony in the fact that this ultra-natural watershape now adorns the campus of one of the technological world's most dominant companies. While it's delightful to think about software engineers rolling over computer code in their heads as they stare at mountain cascades, I for one can completely relate to how invigorating it must be to spend time by the water's edge after hours spent staring into a computer screen.

The unifying lesson in all of this, I believe, is that no matter how advanced, clever or inventive we humans become, our finest creative expressions still exist primarily as echoes of the natural world. In fact, it could be argued that as we strive for greater inventiveness and refinement, what's really happening is that we're just becoming better at expressing the sublime and simple beauty of nature.



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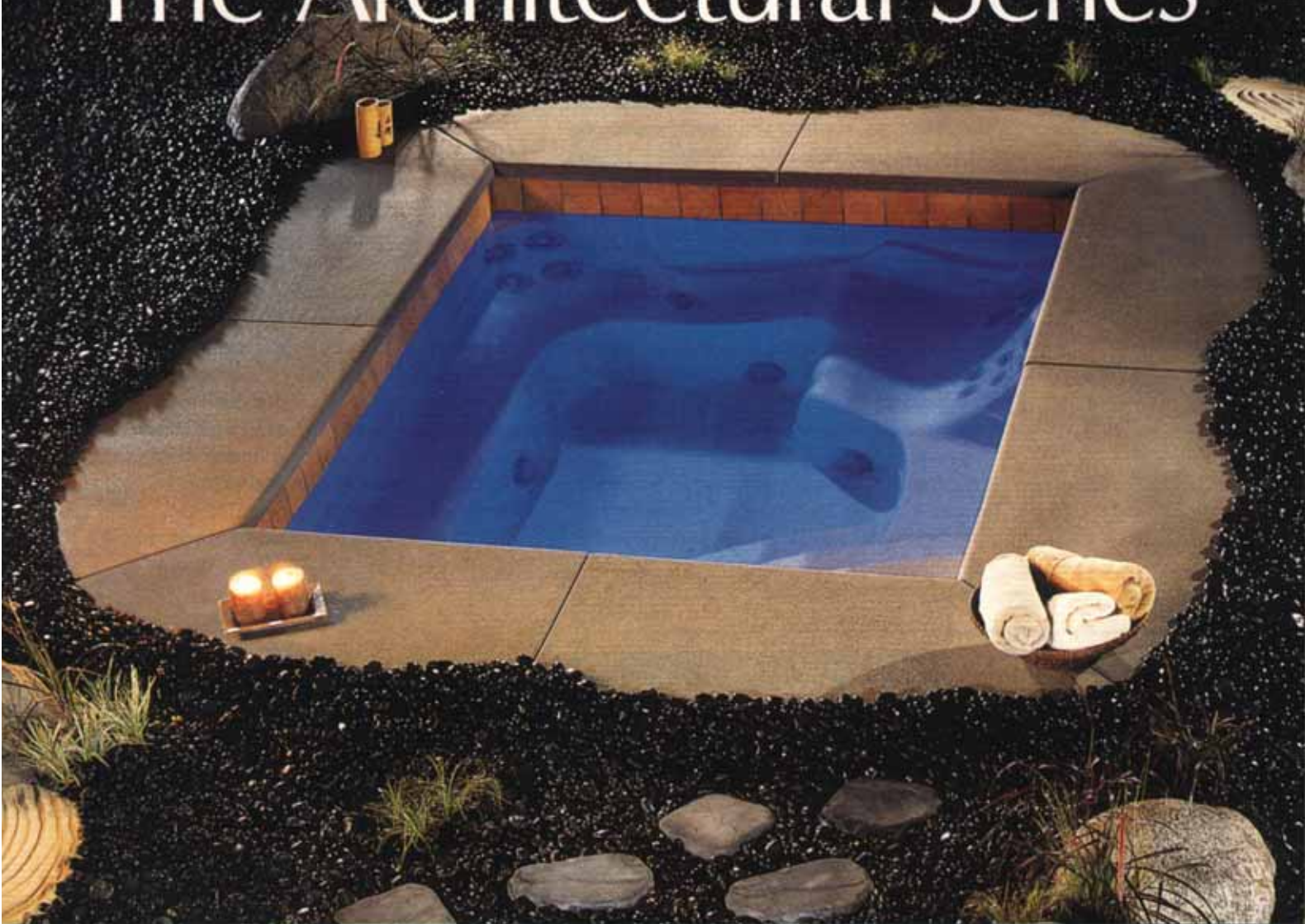
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**Martha** and **Randy Beard** own Pure Water Pools, a construction/service firm in Costa Mesa, Calif. They met in 1981 while both were working behind the scenes in the entertainment unit at Knott's Berry Farm. At the time, Randy also had a small pool-service business and convinced Martha (Marti) to invest in expanding the route. They purchased Pure Water Pools from another technician and have operated in the Costa Mesa/Newport Beach ever since. As the route grew, both dropped their other jobs and focused entirely on the pool business as small repairs led to big repairs, big repairs to remodels, and remodels to new construction. Each year, they've seen their projects become more creative and technically challenging. Today, the firm works with many of the area's leading architects and landscape architects to create a range of custom

watershapes for upscale commercial and residential clients.

**Ron Yavis** is design and project manager for Sunshine Pools & Spas in Kelowna, British Columbia, Canada. He has worked in the pool and spa construction trade since 1980, when he and his brother, Peter, expanded their landscaping business to include spas and backyard swimming pools. In 1996, he was hired by Sunshine Pools & Spas to launch the company's construction division, which now runs alongside the company's retail store and full-service maintenance and repair operation. Yavis personally oversees all of the firm's construction projects from start to finish, and more than 90% are fully custom, in-ground vinyl pools.

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**Robert Jechart** is president and CEO of RJE Technologies, Inc., an Irvine, Calif.-based manufacturer of a sonar-based alarm system for swimming pools. He founded the firm in 1999 as a sister company to RJE International, a world-leading supplier of underwater sonar technology for military and commercial applications that Jechart founded in 1991. His career in high technology began when he worked with his father, Ernst Jechart, the world-renowned inventor of the modern atomic clock now on display at the Smithsonian Institution in Washington. In 1980, he founded (and later sold) an electronics-manufacturing firm dedicated to underwater wireless communication. Jechart is past president and a founding member of the Orange County (Calif.) Chapter of the Young Entrepreneur's Organization, among many other community and education-based activities.

**Jon Mitovich** is president and general manager of Roman Fountains, a designer and manufacturer of fountain-system packages and components based in Albuquerque, N.M. He graduated in 1976 from Southern Methodist University's Cox School of Business in Dallas and has participated in seminars on fountain and pool design at UCLA and Harvard's Graduate School of Design. Mitovich is a member of the American Society of Landscape Architects, the Construction Specifications Institute and the National Spa & Pool Institute. He has conducted classes and seminars on the fountain business and fountain design for various ASLA and NSPI chapters to help watershapers understand the origin, history and application of water in architectural environments. He also has written for a variety of trade publications, including *WaterShapes*.

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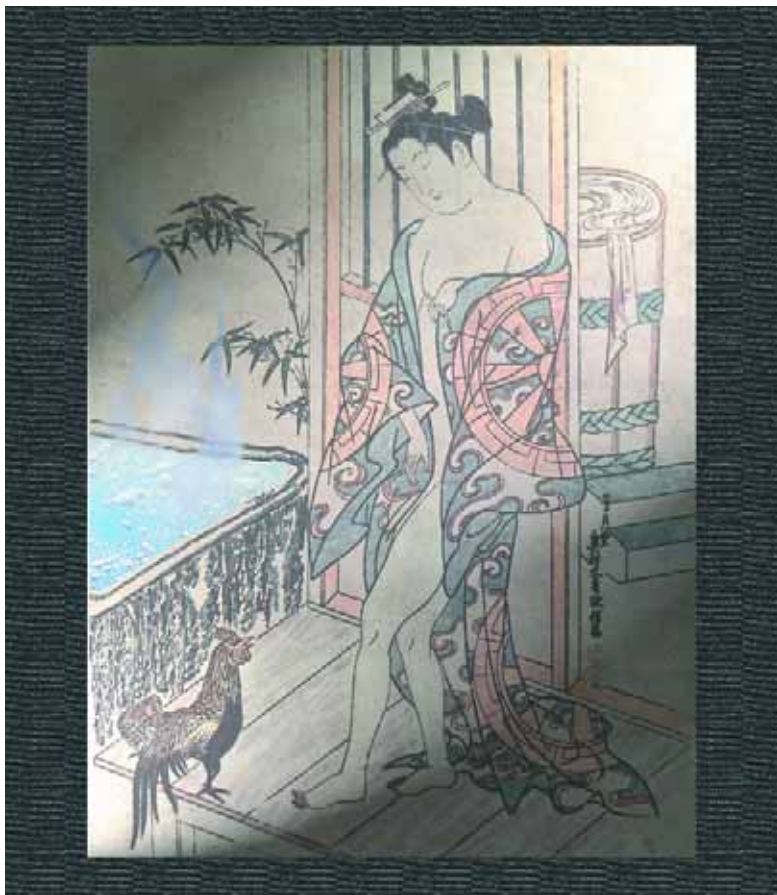
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## Artistry in Hot Water

**S**ince time immemorial, humans have sought out warm water for purposes of pleasure, bathing, relaxation and healing.

That's a great thing for modern watershapers, almost all of whom are steadily asked to design swimming pools with attached spas or to set up stand-alone inground spas or to find ways to make portable spas work as part of a landscape or deck setting. I'd argue that hot water is even more important to contemporary lifestyles than it was to the Assyrians, Greeks or Romans of antiquity, given the stresses of modern life and the fact that we seem to have more of the leisure time required to enjoy a good, long soak.

For all that, I've observed that watershapers don't often invest as much of their creativity in designing the hot-water component of their projects as they do in setting up their pools, cascades or fountains. That's a shame – and another case where giving our clients more options almost invariably inclines them to spend more money *and* derive greater enjoyment from the end product.

For many years now, the great majority of my own designs have included hot water of some kind, and in each case determining just what the customer wants represents an important, separate set of considerations within the overall scope of the project. How this all works is a big topic, so I'm going to spread this discussion out over a couple of issues. We'll start here by covering some

**I've observed that watershapers don't often invest as much of their creativity in designing the hot-water component of their projects as they do in setting up their pools, cascades or fountains. That's a shame.**

broad design issues – placement and materials, for example – before moving on next time to specific details and options including seating contours, jet configurations and more.

### First Thoughts

For purposes of this discussion – and despite the many virtues of portable spas – I'll be limiting my coverage here to custom work and inground spas made of concrete, stainless steel or fiberglass. There are, of course, big differences among these three materials, but there's also enough similarity that what I have to say encompasses them all.

One of the things I enjoy most in discussing spas with my clients is the opportunity it affords me to get to know them in what can only be described as a fairly personal way. I'll resist the temptation to make a joke; let me point out instead that the aesthetic, therapeutic and lifestyle issues involved here add a whole different dimension to the art of watershaping. Not only must the spa fit in visually, but it must also function in ways that enable bathers to enjoy a peaceful and often sensual experience.

That in mind, I approach these client discussions with an awareness that the spa is a body of water that likely will be used by people bathing in the nude (or close to it). That's important to remember because it directly influences the design – specifically, where you position the spa in the yard and how “private” the space should be.

The nature of the product also dictates that the setting and what you see from this very special vantage point should also be as aesthetically pleasing as possible. I suppose you could put a spa inside a garage for the ultimate in privacy, but who wants to look at peg-boards and oil cans as they indulge





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in a sensory, hedonistic experience?

Most spas I've seen have been placed relatively close to the home, and that often makes sense. It facilitates access from indoors, and these close-in areas tend to be more private and sheltered. And there's no denying that many clients, particularly in colder climates, like the idea of being able to step outside a bedroom door and settle into the warm water with minimal exposure to the elements.

That's fine, and I've placed spas near homes myself. What I consider every time, however, is that this doesn't *always* need to be the case. In fact, one of the things I look for are ways to set the spa in locations where other elements of the setting come into play. This has everything to do with the specifics of the site, but given my preferences, I always hope to find yards where the entire space is private and opens the design process to lots of possible spa placements.

And I don't let the existing lay of the land warp my thinking. I'll include structures, plants or grading, for example, if it means the spa will command a better view across the yard than it would from nearer the house – or if the clients express a need to get away from high-traffic areas or the noise of their children. Figuring this out takes a while and definitely calls on the designer to spend quality time finding out exactly what the clients want and expect from their spa before deciding where it should go.

### Garden Vistas

So often when I've seen what I consider to be the "standard" spa treatment, I come away with the impression that the only question the watershaper asked the client was, "Do you want one?" There's a lifelessness that radiates from every angle of these projects where instead the spa should be an amazingly dynamic component of the design and of the overall environment.

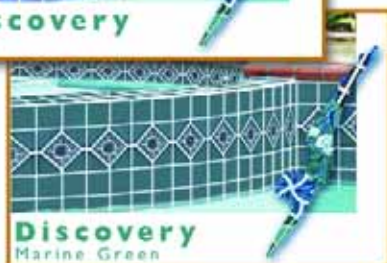
As I've mentioned before, I've been doing a great deal of work on the island of Bermuda. One of these projects is still in the design phase, but it looks as though it certainly will include a spa placed in a setting inspired by the clients' interest in Japanese gardens.

I can't wait to make this one happen. At this point, the entire space is to be contained within high walls lined by bam-



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boo. There will be a beautiful pond and stream as well as a simple plank bridge, meandering foot paths, "streams" of raked sand, the elegant plantings typical of Japanese gardens and a lovely stone water basin (known as a *tsukubai*) that will be set adjacent to the spa.

The setting will be about as idyllic as can be—private and languid. The fact that the

entire space is enclosed gives us a great deal of freedom with respect to spa placement and the opportunity to put it where it offers bathers the best possible view of the gardens. This nicely mirrors the approach being taken with the home's interior design, which features several carefully planned, exquisitely framed garden views.

This project also provides a good ex-

ample of another important design issue that calls for early attention: *size*.

The spa's size is indeed very important, and experience has taught me that the phrase "less is more" often holds true here. Spas that seat four to six people are ample for a great many situations. Spas larger than that can be fine, too, but the customer needs to know that there will be

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### Breaking the Plane

One of the keys to the functionality of a spa is elevation. It influences what you see when seated in the water, it affects access and the process of getting in and out of the water, and, in many cases, it defines the relationship between a spa and an adjacent or attached pool.

I was recently brought into a project in which an architect had already installed a spa and asked what I thought. It was set on a spot overlooking the ocean and offered a perfect opportunity to lift the vessel a bit above grade to take advantage of the view.

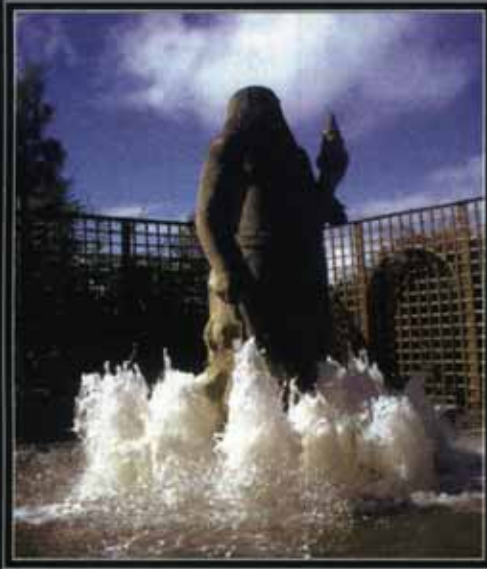
Unfortunately, however, the architect had set the spa at grade level—and even aggravated that questionable decision by designing the whole thing with the water level recessed another nine inches below grade, completely depriving the bathers of the ocean view. Had he raised the elevation even a foot, the entire experience would've been transformed. And if he had created a perimeter-overflow effect (to match the style of the pool), the connection between the bather and the spectacular environment would have been even further enhanced.

The homeowners asked us to help, but all we could do short of starting over was to raise the seating level to lift bathers' eyes just above grade. Not much of a solution, but a caution that what you see from inside the spa is absolutely crucial to the success of any good spa design.

—B.V.B.



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## AQUA CULTURE

extra costs involved in heating all that water and that it's more difficult (and costly) to create a satisfying hydrotherapy experience in a large vessel.

I've seen some spas so large that they make no practical sense – bodies of water large enough to swim across that can hold a dozen or more people. Certainly, if the client means to have parties where they want a whole bunch of people to bump around together in the water all at once, or if they have a passion for being able to do some specific warm-water exercise routine that requires lots of room, then a behemoth spa may be in order.

For most applications, however – and including the one we're working on in Bermuda – a smallish spa is generally a good choice.

In this case, the spa will have a circular form with an outside diameter of eight feet. We chose a circle in keeping with the elegant simplicity of structures found in Japanese gardens, but I also work with circles (as well as squares and hexagons) in more architectural designs. Free-form spas have their place as well, given an appropriate context in a free-flowing landscape or pool design.

Again, it's all about context and selecting a spa configuration that works with the setting.

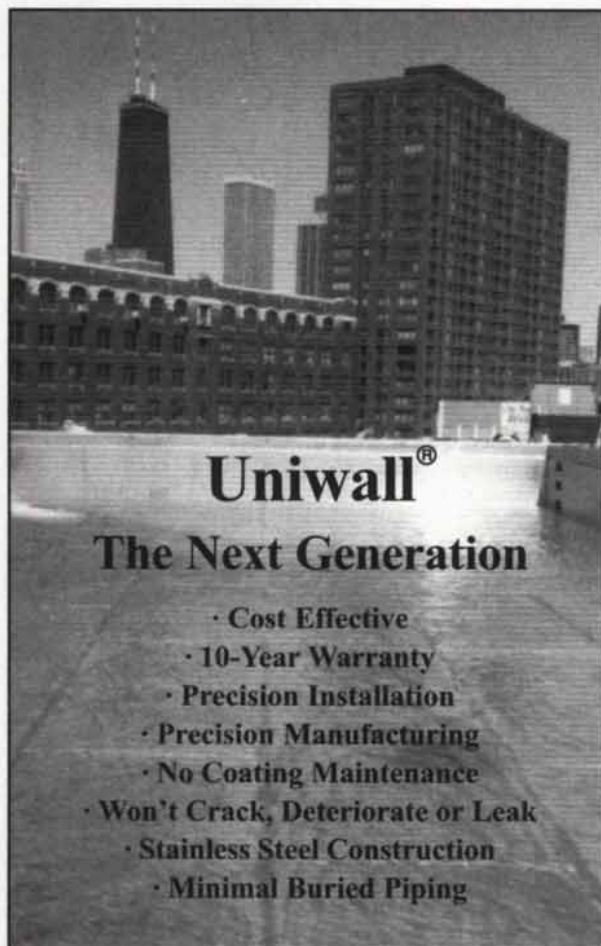
### Material Choices

If you've been following this column for any length of time, you're aware that I am passionate about materials. As is the case with so many aspects of design, I'm a firm believer that materials selected by clients can and should have a tremendous influence on the design and on the overall experience they have in their water-shape once my work is done.

With spas, however, the usual materials considerations should be joined by an awareness of the fact that clients will spend a great deal of time in close physical contact with the materials you decide to use.

You can finish spa interiors in any number of ways – with tile or plaster, for example, or with exposed- or polished-aggregate finishes or even certain types of stone or marble (if the material is suitable for constant submersion in heated, chemically treated water).

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Bermuda, we'll be using a deep-gray slate on the perimeter beam as well as some loose-set walkways, a wide band of black absolute granite on a ledge just beneath the slate that I call the "neck-saver" detail (a feature I now include on every spa I design these days – and an idea I must credit to my Genesis 3 partner, David Tisherman) and, for the interior, a black polished-aggregate finish.

These materials have been chosen for their compatibility with each other and for the way they harmonize with the plantings and wooden features of the surrounding garden. They also found favor because they provide an awesome tactile experience for the clients and any guest who might be lucky enough to enjoy the spa.

The same set of requirements works across the boards here: Basically, anything we work with must look good, feel good and hold up well in the hot-water environment.

The finish materials selected for a spa have a lot to say about how the vessel itself is formed. Gunitite or any concrete vessels are certainly the most flexible in that you can finish them with almost anything and they can be built to dimensions and with contours that accommodate factors such as the size of tile you might be using.

For their part, stainless steel spas can be made to order in custom sizes and configurations and can also be finished with a range of masonry materials. Fiberglass spa shells are less adaptable in the sense that the factory provides the finish in the form of the topcoat on the shell's interior. In many cases, however, shell manufacturers set up areas in the shell that are designed to accept tile or stone elements for decorative purposes.

When things work out exactly the way I'd like them to, I prefer to finish my spas, which are usually gunitite, with tile or exposed-aggregate finishes. I still like plaster, however, and find that it can be truly beautiful in a spa – especially when it is applied alongside a plaster pool or associated waterfeature – but while I see aesthetics as a dominant consideration, I can't get away from the fact that tile and polished exposed-aggregate finishes feel great to the touch.

Whatever finish is chosen, the ultimate call belongs to the clients. If I do my job

and present them with all of their options not just in the finish but also with respect to location, size, shape and elevation, then they'll be primed to enjoy all the benefits of warm water for years to come. **MS**

*Next: Completing the spa-design process with decisions about seating configurations and hydrotherapy action.*

**Brian Van Bower** runs Aquatic Consultants and is a partner in Van Bower & Wiren, a pool-construction firm in Miami. He is also a co-founder of Genesis 3, A Design Group; dedicated to top-of-the-line performance in aquatic design and construction, this organization conducts schools for like-minded pool designers and builders. He can be reached at [bvanbower@aol.com](mailto:bvanbower@aol.com).

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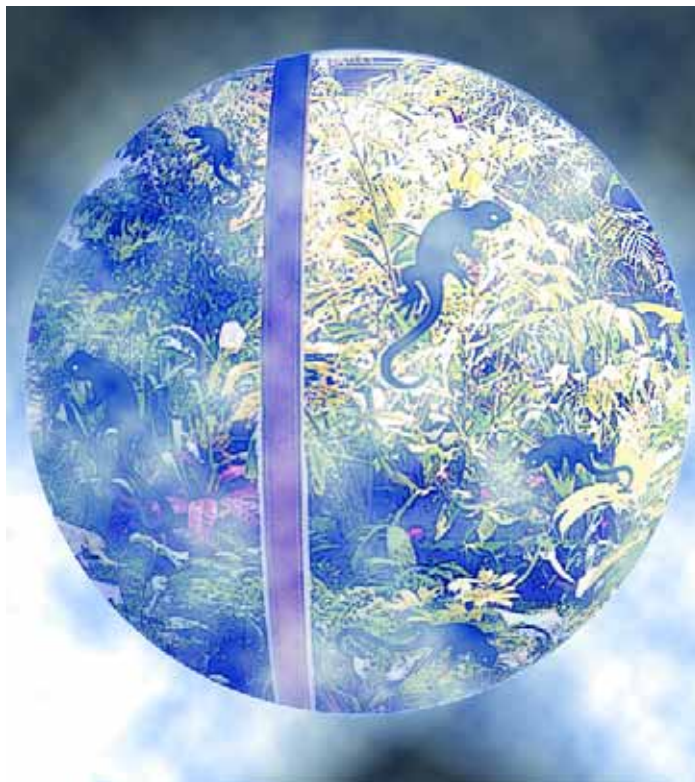
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## Water with a Difference

**W**e all know how much watershapes add to the beauty of any setting, but I suspect we also tend to take for granted the integral role water plays in *sustaining* those environments.

It's obvious that no landscape would survive long without a steady infusion of water to nurture its plants. Less obvious, however, are ways in which water can be used to make some places more hospitable to other life forms that inhabit them.

This really isn't new. As has been noted in several articles published in *WaterShapes*, water has been used in arid climates for centuries as a prime source of "air conditioning" for both exterior and interior spaces, from the Moorish palaces at Cordoba in Spain to the Renaissance gardens at Italy's Villa d'Este.

Much more recently, watershapers have caught on to such possibilities in a big way by focusing on the physical form water takes within environments and on the use of fog and mist systems.

### Atomized Effects

I'm sure someone in Hollywood figured out a way to create

**Beyond the visual effects achieved with atomized water are some profound physical ones. This is why misting systems have become so popular (and even necessary) in places such as Palm Springs and other desert areas.**

fog effects many, many years ago, but the fact of the matter is that this particular form of watershaping is a fairly recent phenomenon for most of us – and one worthy of our attention.

My own encounters with fog systems began with Raindrip's "misting" heads, which I saw used to create fog effects under garden bridges and with ponds. These misters enhanced the visuals achieved with ponds, rivers, streams and other such watershapes by lending an air of mystery, spookiness or romance.

They worked these changes in mood depending upon how they were used and the overall context. And when combined with good, appropriate lighting, these fog and mist effects were (and still are) spectacular and can really change the way observers respond to particular settings. The possibilities literally are endless.

Beyond the visual effects achieved with atomized water, however, are some profound physical ones. This is why misting systems have become so popular (and even necessary) in places such as Palm Springs and other desert communities: They make dining spaces and other outdoor environments much more suitable to human habitation.

Lest we forget, by adding humidity, lowering temperatures and gently adding water to any area, fog and misting systems can also help plants. For example, misting systems are used frequently in greenhouses to add humidity and blanket plants with a thin layer of water. In fact, most orchids rely on these systems for their survival.

Outside the greenhouse, misting systems can lower temperatures by as much as 10 degrees Fahrenheit in the area immediately surrounding the emitters. Sitting under a misting system at a Phoenix restaurant can make 110-degree days reasonably tolerable – and can make all the difference in the success of these businesses.

But application of these systems need not and should not be limited to outdoor seating areas in restaurants. One case in point is an environment I created with the help of a misting system for a home in a neighborhood



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adjacent to the ocean in southern California.

## Tropical Notions

The overall style was to be a combination of tropical and cottage. As I discussed in an early "Natural Companions" piece, this involves a balance that can be achieved by selecting plants carefully and

choosing those that tolerate similar watering regimens.

The climate surrounding the house is strongly influenced by the ocean, which allowed us to choose plants that generally require greater humidity and to place them pretty much anywhere we wanted. Most southern California landscapes call for placing tropical



The fully enclosed courtyard provides a free-flowing, well-shaded haven for its reptilian occupants and gave me the opportunity to put a misting system to use in creating a subtropical environment on the coast of southern California.

plants in shadier areas, but here, the ocean influence gives us some welcome flexibility.

What was unique and challenging about this project was the home's atrium. The house was built in the 1960s with a courtyard completely surrounded by the structure. When I was brought in on the project, the planting area was about five feet by ten feet, with the rest of the space blanketed by concrete. My first thought was to buy great furniture and replant the overgrown planter, but I quickly had to rethink that plan when the homeowners told me how they hoped to use the space.

I didn't know it at first, but I learned quickly that the couple raised exotic reptiles and wanted to turn the entire atri-

**My first thought was to buy great furniture and replant the overgrown planter, but I quickly had to rethink that plan when the homeowners told me how they hoped to use the space.**

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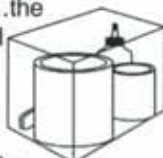
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um into an outdoor home for their menagerie. After getting over my initial reaction to the creepy-crawly things, I became fascinated by them and dove into the process of creating an incredible habitat that would come pretty close to the real thing.

With some research and the support and input of the homeowners, we came

up with a game plan:

- First, the entire concrete floor of the atrium would be broken up and placed back down, using Baby Tear's and decomposed granite as grout so that no mortar would be required.

- Next, we would shop for tropical plants. None could be poisonous to the animals, nor could those we planted on



The courtyard is large (about 30 by 30 feet square), which allowed us to select and arrange a wide variety of plants. The only issue was keeping taller plants away from the eaves: We didn't want to let the reptiles escape their climate-controlled habitat!

the perimeter grow high enough to meet the eaves or the roof of the house (thus enabling the critters to crawl out over the roof).

- Then we needed to accommodate visitors to the space, which was simple because all the homeowners wanted for themselves was a place in the atrium where they could sit and watch the reptiles as they wandered around.

- Finally, we needed a small pond to add some humidity and give the reptiles ready access to sufficient quantities of water to meet their needs.

We realized, however, that for the most part the critters would get their water not by lapping it up from the pond, but rather by drinking it off the plants, as they would in the wild. As a result, we concluded that a misting system would be our best bet and installed one around the entire atrium, right under the rain gutters.

The misters were set up with a timer to go off three times a day, providing ample water on the plant leaves for drink-

For the most part, the critters would get their water not by lapping it up from the pond, but rather by drinking it off the plants, as they would in the wild.

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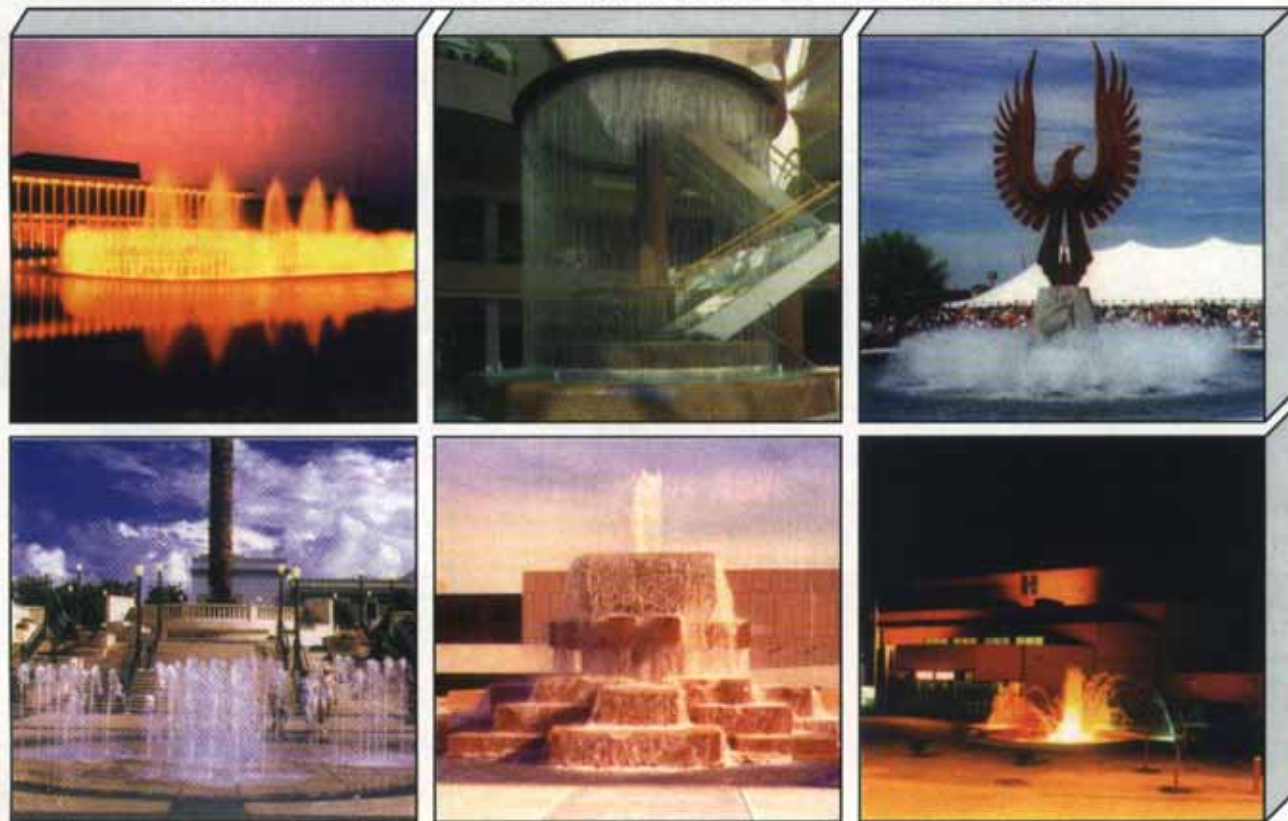
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ing, raising the overall humidity in the atrium and creating a moist enough environment to sustain the entire palette of tropical plants.

## Making a Micro-Climate

Because the atrium was completely surrounded by the house, it did not have the same climate as the ocean-influenced

area surrounding the house and was actually quite dry by comparison because of the concrete, the shape of the area and the lack of exposure to sea breezes. In other words, we'd created a micro-climate that needed to be manipulated to achieve our goals.

In the end, the misting system resolved a number of problems that nei-



The misting system mounted easily and unobtrusively beneath the eaves on the courtyard's perimeter and does the critical job of keeping the plants moist enough to meet the reptiles' need for a ready supply of drinking water.

ther an irrigation system nor the pond alone could have addressed.

We'd placed sprinklers strategically to water all the plants at a level as close to the ground as possible, because the atrium was surrounded on three sides by floor-to-ceiling windows and the homeowners wanted to avoid having to break out squeegees every day. The sprinklers kept the soil moist, but they couldn't provide droplets of moisture on the leaves themselves the way the misting system could.

As much as I enjoyed this one-of-a-kind project and the exercise of putting a misting system to use for such an unusual purpose, I have to say that there was one thing about sustaining an environment for reptiles that I never quite accommodated, and that's the fact that my clients need to release an entire box of crickets into the atrium once a week. I guess we all have our needs! **WS**

**Stephanie Rose** runs Stephanie Rose Landscape Design in Encino, Calif. A specialist in residential garden design, her projects often include collaboration with custom pool builders. If you have a specific question about landscaping (or simply want to exchange ideas), e-mail her at [sroseld@earthlink.net](mailto:sroseld@earthlink.net). She also can be seen this season in six new episodes of "The Surprise Gardener," airing Tuesday evenings on HGTV.

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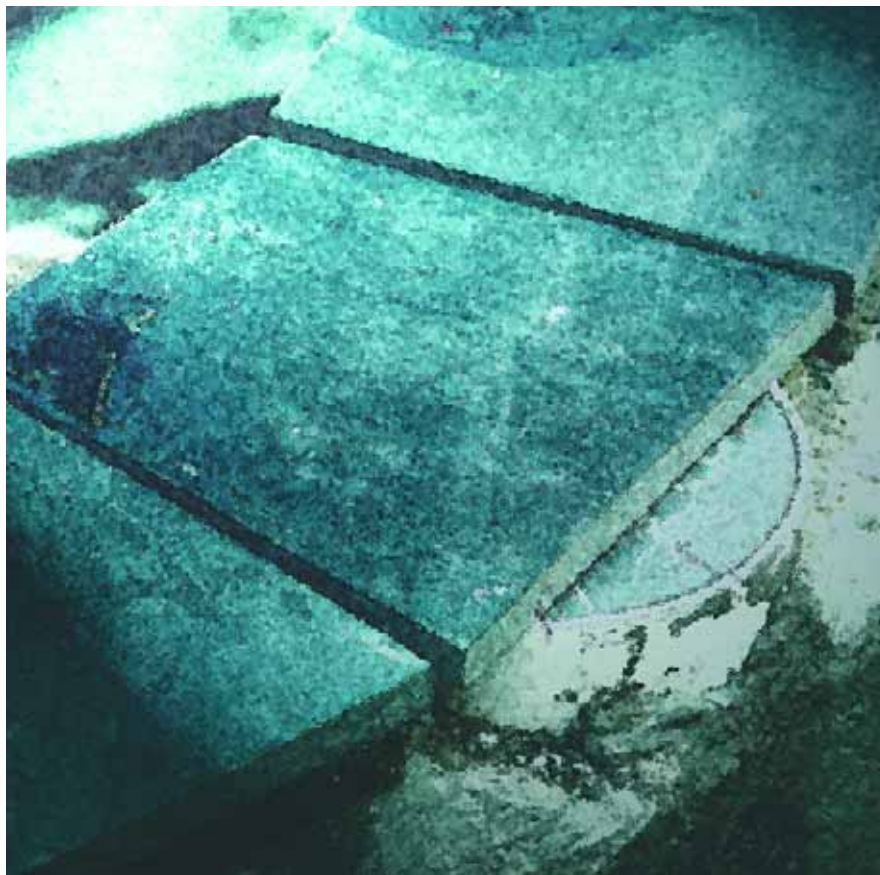
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## Material Implications

One of my guiding principles has to do with the fact that early decisions my clients and I make about materials have a huge influence on how my water-shapes ultimately are designed and built.

The project we've been following through the past few issues is a perfect case in point: The choice of the bluestone coping and of the one-inch glass mosaic tile for the pool's and spa's interiors started the wheels turning and definitely drove the early stages of the design process.

As I've mentioned before, this project and its unforeseen problems (as well as clients who were at times unsure of exactly what they wanted) added layers of difficulty to what would have been a tough, demanding process even without the extra hurdles. With all that difficulty behind us, it was possible to start the work of pleasing these clients without creating what I've been known to call "visual pimples."

### Bluestone Blues

The clients decided early on that they wanted one-foot wide wedges of bluestone as their coping. That was fine, but then came a flood of second thoughts and

The clients decided early on that they wanted one-foot wide wedges of bluestone as their coping. That was fine, but then came a flood of second thoughts and changes.

changes: The deck behind the coping, for example, was to be all bluestone. Then they decided they wanted *two* feet of radiused coping with enlarged planters and less deck. Then they moved back to one foot of coping with a grass yard before finally settling on the deck arrangement we'll discuss in an upcoming issue.

The bluestone coping was always a good choice, no matter how wide its span, because it could be gauged at exactly a three-quarter-inch thickness – which in turn would enable us to set up extremely precise joinery at the pool's edge and between the coping and the interior tile.

The goal was to employ a minimal coping profile and create a "floating waterline" – that is, we wanted to bring the waterline right up to the bottom of the overflow line set just below the coping. As I've mentioned before, I use a one-by-four-inch line manufactured by Overflow in Los Angeles – it's perfect for these sorts of applications where I want to create tight visual transitions between the edge of the vessel, the surface of the water and the interior finish.

The clients' final change in preference from two feet of coping to just a foot of coping was tough, however, because of the way in which the shell had been designed. We'd planned on a 12-inch bond beam with a series of deck dowels tied into the shell that would have enabled us to cantilever the ten extra inches of coping material off the back of the bond beam. But now, with the plumbing, steel and forms already in, the clients insisted on a narrower edge.

Continued on page 28





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Reworking the entire steel structure would have been both extremely costly and time consuming (two outcomes the clients were not willing to accept), so I developed a detail that took care of the problem. We shot the shell the way it had originally been designed, but as it was curing, we shaved off the back of the beam at a 45-degree angle, cutting in about two inches.

Later, we chipped out the concrete around the deck dowels, which had been set every eight inches on the beam, before cutting off the steel. Then we dry-packed mortar where the incisions had been made before waterproofing the whole backside of the beam.

Later, when we installed the bluestone, we cantilevered the wedge-shaped pieces two inches over the poolside of the beam to allow for the mortar bed and tile that would make up the interior finish of the pool. This meant that a portion of the skimmer bodies would have to extend beyond the width of the coping—a double challenge under these circumstances be-

cause there was no allowance for *any* variation in the appearance of the coping.

### The Lid Issue

This whole skimmer business became very complicated.

Anyone who's followed this column or is familiar with my work will know that I detest the way skimmer lids look. They disrupt the lines of a typical pool and degrade the appearance of the decking. Even without cutting off the throat, which I often do to make skimmers less obtrusive, the two-foot coping we'd originally planned would have made it fairly easy to conceal the top of the skimmer beneath a removable piece of bluestone.

With the two-inch cantilever, howev-

We started with a typical, off-the-shelf skimmer assembly, but we had to modify it quite thoroughly to make it work with the narrower beam and 12-inch coping the structural and aesthetic programs ultimately required.



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er, the one-foot-wide coping wasn't wide enough to hide the skimmer and left a portion of the skimmer body exposed beyond the back of the stone. To make a long story short, I had to come up with a way to attach the bluestone to the top of the skimmer and do so with enough stability that a person could stand on the coping/lid without moving it.

Because I knew the stonework could not be compromised, we started by cut-

We tried attaching just a single round of stone to the underside of the coping to set up our skimmer lid, but we found we needed more stability and ended up attaching three pieces of stone.

ting the stone into pie shapes as we would have if the skimmer hadn't been there. Then I measured the diameter of the skimmer's top – eight-and-a-half inches – and cut three circular pieces of stone that were one-eighth smaller than the



The lid is now completely stable and, once the landscaping is in, will fit in seamlessly with the visual flow of the entire, undulating edge treatment.

opening of the skimmer. Then I took one of those pieces and glued it to the underside of the piece of bluestone that was to serve as the cap for the skimmer.

I stood on this setup and saw that there was too much play: The lid rocked when



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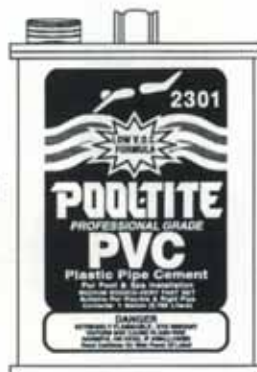
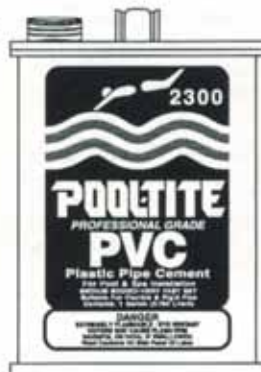
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## DETAIL 24

I stepped toward the cantilevered edge when there was just one 3/4-inch piece of bluestone glued into place. So we attached the other two circles of stone, and the new skimmer-lid assembly was now anchored in place and completely stable – yet still easy to remove. We then repeated the process for the pool's other skimmer.

The result is that the skimmers now completely disappear from view, but are still easily accessed for service. The only difference in the way the new lids look is that they aren't grouted around the sides.

### A Special Blend

Next, our attention moved to the interiors of the pool and spa and application of a custom-blended one-by-one glass mosaic tile.

The tile was chosen through a process of blending different combinations of

## Mother of Invention

When I was studying industrial design, my instructors taught us that when you have to make something, what you're really doing is creating the tool that enables you to make the object you need.

In this case, we wanted to make an invisible skimmer, so we fabricated a skimmer lid that enabled the skimmer to disappear. This is a different approach to problem-solving than the one taken by all those contractors who look no further than a catalog to find an existing product that (sort of) meets a need.

Personally, I have far greater admiration for inventors and those who jump in and fabricate something to suit an immediate need. To my mind, true excellence in watershaping is all about having that inventor's spirit. In a sense, every new swimming pool is a new invention, and if you're doing truly custom, quality work, you will certainly find yourself in a position where the best solution is one you must devise for yourself.

—D.T.



green tile in different finishes on sample boards so the clients could visualize how their pool and spa would look. Ultimately, we chose to work with three greens with an iridescent finish and set them up on five sample boards with differing proportions of each shade of green.

The blend we landed on is now called "Heather" green – the most beautiful surface material I've ever seen.

As I've mentioned before, I feel strongly about green. It's one of (if not *the*) most common colors in nature, it's soothing, it can have a beautifully rich and elegant appearance, and it does *not* make water look like it's full of algae. When I want to work harmoniously with all sorts of surroundings, green is often my first choice. And in this case, the green gives the water a beautiful color that truly befits the setting.

One of the small touches that I really like on this project is the small, glass-tile heart we placed in a corner of the pool's shallow end. In the center of the heart is

the letter T. The clients are certain it represents the first initial of their last name, and my electrician Tony has the same idea with his first name. I know, of course, as does anyone who knows me or my work would understand, that the T actually stands for Tisherman. I have, after all, never been accused of lacking ego when it comes to my work.

We made the badge by taking the darkest color green in the tile to use as the field of the heart, and we used the lightest color for the letter. Around the heart, we filled in with the light color to set things off. This heart was, of course, a bit of fun. Actually laying out the tile on all the complex, contoured surfaces of the pool and spa was anything but.

This was a project in which my tile applicator, Willie Villanueva of J.W Designs in Los Angeles, really showed his stuff. I've always considered him the best in the business, and I've used him on jobs all over the country, but he outdid himself in this case.

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All the curves and interior details made for lots of cutting and nipping in the tiling process. We helped the installers avoid the "pie" effect (and its big grout joints) by having the tile set up with a running bond rather than the usual stacked pattern.



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## DETAIL 24

### Tile Details

It's possible to argue that some of the design decisions we made for this project might have come without knowing about all of the materials selections, but there can be no doubt that specifying tile for the interior drove us in certain specific directions.

I know from simple observation that many people don't consider how much effect the shape of the interior of a pool or spa has on the way tile looks when the vessel is filled with water. That's not good, because shape and contours of these vessels can have tremendous influence on the tile's appearance, how reflective the surface will be and our perception of the depth of the watershape.

In this case, the use of tile dictated that there should be no coves in the pool at all. Instead, the walls and floor are perpendicular, which gives the pool both a deeper look and a cleaner look so far as the tile is concerned.

This is, of course, a much more involved sort of construction, because the sides essentially become retaining walls and the floor a footing. And the tolerances are understandably very tight. In short, it's a completely different way to design and engineer a shell.

Yes, it would have been simpler to install a standard cove-contoured shell and finish it with plaster or an exposed-aggregate finish, but in this case, the material selected for the interior finish dictated doing the job a certain way – and designing and building a more challenging structure.

The result is glorious use of the "Heather" green tile mix – the most beautiful and striking finish I've ever seen, and well worth the extra expense and effort.

—D.T.



Here, the tile installer is putting the finishing touches on the "T" badge we placed in a heart in the bottom of the pool.

we went to the extra up-front expense of having the tile laid out by the manufacturer in a running bond rather than in the stacked style customary with high-end tile. This made it a bit easier to deal with all the twists and turns in the radiuses without producing the big grout joints that can come with the "pie" effect.

Even with that help, the work around radiuses and various fittings required a huge number of cuts and nips – literally thousands of them in the pool and spa. The care and precision were crucial: As always, we didn't want *anything* to disrupt the visual flow and dynamics of the lines and the sinuous shape of the pool or spa – and that included using one-inch quarter rounds at every edge of each bench and step.

All of this attention to detail enabled us to meet our commitment to avoid visual pimples – the kinds of blemishes that separate run-of-the-mill work from true artistry of the sort to which we were aspiring with this project. **WS**

**David Tisherman** operates David Tisherman's Visuals, a design and construction firm based in Manhattan Beach, Calif., with offices in Marlton, N.J. He is co-founder and principle instructor for Genesis 3, A Design Group, which offers education aimed at top-of-the-line performance in aquatic design and construction.



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# Exterior

When a project's designer and client are one in the same person, the level of interaction and responsiveness asked of the watershaper tends to increase dramatically, report custom builders Martha and Randy Beard. To illustrate this point, they describe a pair of projects in which a local architect designed homes for herself and her family – and asked the Beards to create the perfect aquatic complements for some exquisite surroundings.

By Martha & Randy Beard

# Motifs

Great watershaping is, we believe, all about creating forms within a context. The thoughtful watershaper will survey all the key elements of a project while conjuring a mental picture that's as close to the architect's vision as possible – and then base the work that follows on a solid understanding of both the design and the setting.

It's always most exciting when we're asked to consult with the designer about a project before the lot has been graded and the ideas are still flowing onto the sketch-pad. In those cases where the designer, architect, and homeowner are all the same person and those initial discussions involve the designer's own living space, the nature of this interaction can truly be something special.

At Pure Water Pools, we've had such a privilege on two occasions, both in working with Lynn Pries, a Newport Beach, Calif.-based architect who has spent much of her career designing high-end residences across the United States and Europe. These days, she mostly works on one project at a time, carefully selecting and purchasing a property herself and then seeing to every design detail, inside and out, from start to finish.

So far, we've built two swimming pools for her homes and have been thrilled to work with a designer of her skill and spirit. Both pools were quite simple in many respects and not particularly challenging from a technical standpoint. The excitement came instead from the opportunity to be a part of the process in which integrated environments were created.

## BUILDING COLLABORATION

Pries is a thoughtful designer and treats her projects as cohesive ideas in which every element must fit together and complement everything else around it. This is true of the basic architecture and the interior décor, and it extends outdoors to encompass plantings, hardscape, statuary, fountains and watershapes.

Her work has an element of whimsy that's underscored by a rich and creative application of classic styles and motifs. She begins by sketching on paper, linking all aspects of house, yard, and water to one central theme. But when it comes to exteriors – and her watershapes in particular – she works with contractors and engineers whose expertise influences her design decisions from the outset.

Our first project with Pries was in North Laguna Beach, Calif., in an exclusive area characterized by beautifully styled





**EAST COAST INFLUENCE:** The pool's materials and finishes were selected to fit in seamlessly with the Cape Cod-style home. Even the bluestone came from New England, and all the lines, the lack of hardscape around the pool and the general understated quality of the watershape itself fit within the architect's vision.

homes on relatively small lots perched high above the Pacific Ocean. Although her own property did not directly overlook the beach below, it was just a short walk from the tide pools. The air is always cool and salty, and the feeling of the space is entirely influenced by its proximity to the ocean.

Keying on the surroundings, Pries designed a Cape Cod-style estate, a choice that contrasted with the modernist- and Spanish-Colonial-style homes in the neighborhood but that was perfectly suited to the ocean-front setting. For the ex-

terior design, this translated into clean, straight lines used to define boundaries and mark contrasts and into a rectilinear pool with an understated spa tucked into a corner where it virtually disappears.

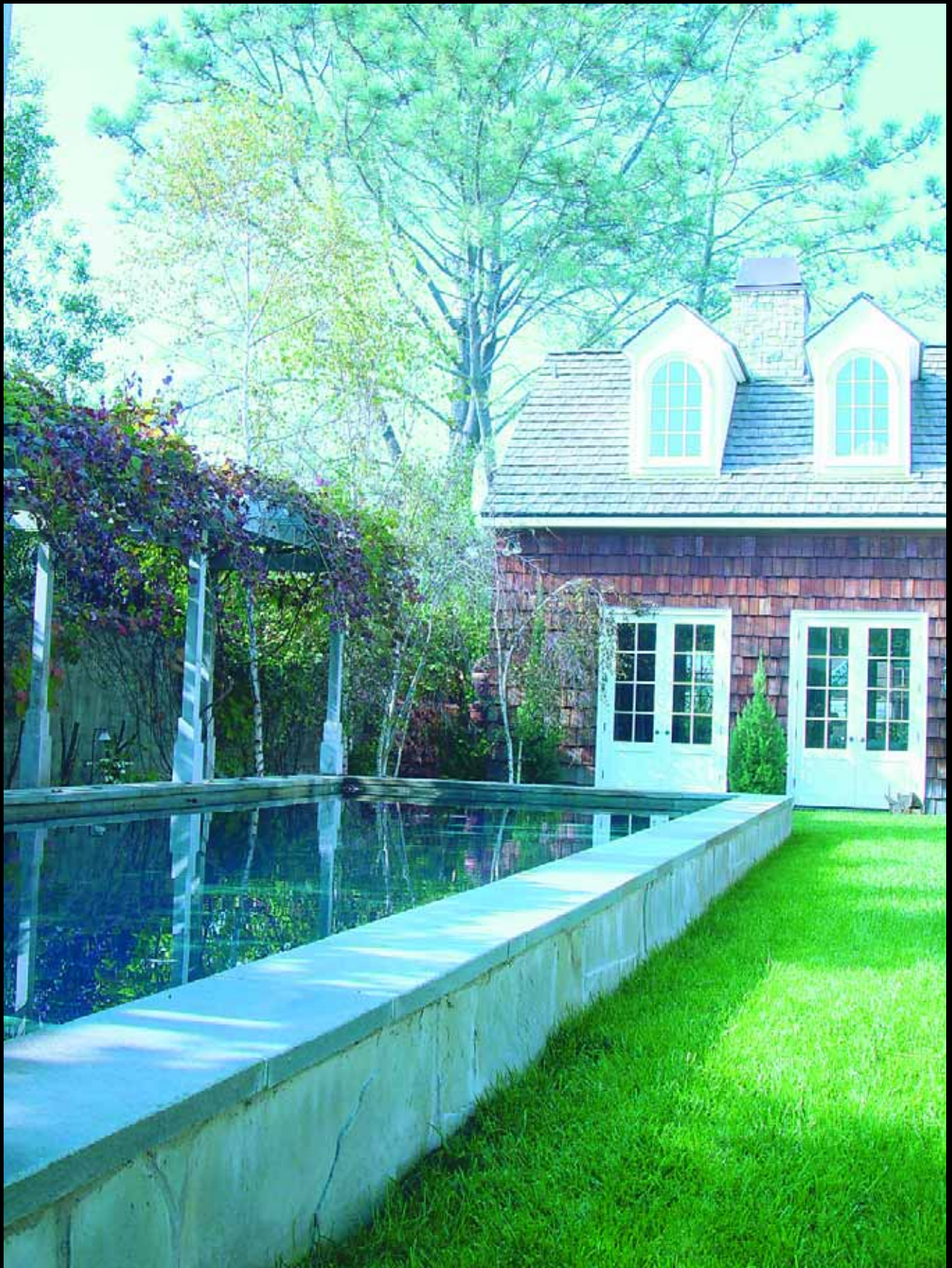
The materials she selected had a great influence on the details of the work and the final results. New England bluestone was used to create a flat, elegant coping with a rich combination of deep blues, steel grays and hints of earthy brown. (When the project was completed and the pool filled, we were delighted to see that much of the stone border trans-

formed the medium-gray plaster inside the pool into a dark, almost metallic marine gray. )

The simplicity of the rectangle and the hues of the stone are heightened by the lack of any nearby hardscape. The grass grows right up to the verge of the coping, letting the blades soften the sharp edges of the raised stone face. Down the length of one side of the pool there are five pairs of simple pillars, all finished in a soft gray to blend with the coping and supporting a continuous grape arbor.

The arbor covers much of the pool,









**EYE-CATCHING APPEAL:** The grape arbor was quite an unusual choice as a poolside feature – and one we knew about from the start, so we designed the circulation system to handle more debris. The resulting structure, the shade it casts and its reflections on the water now give the entire setting much of its personality.





which means lots of leaves and debris. We expressed our concern about this to Pries, but she saw a fair trade-off between beauty and maintenance challenges and left it to us to develop a circulation system and skimmer locations that would accommodate the plantings. As designed and executed, the arbor is indeed a unique and eye-catching touch – one that gives the pool its personality.

The grape leaves winding up the pillars and hanging down through the overhead slats soften the stiff lines and offer a tranquilizing green contrast to the overall impression of the rectilinear forms. The pale

greens and the quiet exterior grays accent the dark-brown shingles of the house – an honest evocation of a New England beach house.

### RETURN TRIP

We were delighted when Pries contacted us about a second project, this one high atop a hill in Newport Coast about two miles inland from the beach. The steep rise of the topography lifts the area above much of the ocean mist and into a much drier and warmer microclimate – an atmosphere reminiscent of a semi-arid Mediterranean coastline and one

that gave her the opportunity to change genres and move in an entirely different design direction.

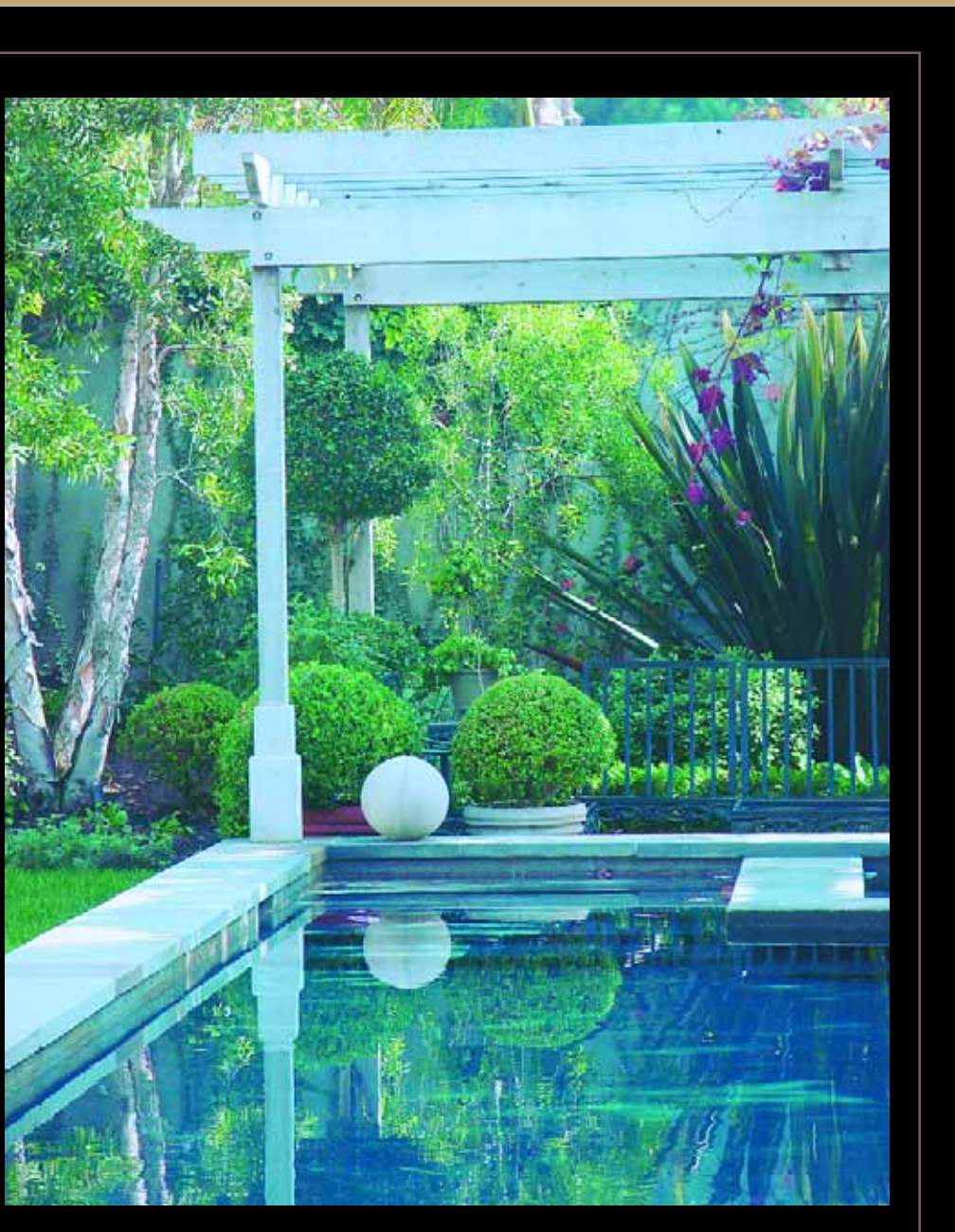
This time around, thoughts of fog-shrouded beach houses were replaced by those of Tuscan-style villas. From the yellow stucco walls and the heavy, rough wooden doors and shutters to the soft, decomposed-granite pathways that wind through the gardens, this home gives you the feeling that you've traveled to a different place and time.

Among the most spectacular features here are the first floor's open-arched patios, which provide transitions from the home's antique-laden interior to the surrounding garden spaces. An open-air atrium – outfitted with thick cotton drapes instead of doors and filled with weathered wicker furniture – opens onto a terraced swimming pool deck surrounded by roses, a variety of shrubs and olive and pepper trees.

Once again, Pries chose a simple rectilinear shape for her pool. This kept the watershape itself from becoming too complex, but she allowed for variations in deck levels that we exploited to develop visual interest and create a range of defined viewpoints. The spa is attached to the pool only by a wide bond beam and equalizer lines, yet the subtle rise from the wide pool coping as you step up to the wide spa coping creates the illusion that the bodies of water are on one level and connected.

This illusion is intensified by the "bottomless pool" effect created by a deep gray plaster. In contrast to the way the plaster on the Cape Cod-style project seemed to make the pool disappear beneath the arbor and upon the green lawn, the darkness of this pool captures reflections, suggests timelessness and serves more distinctly as a focal point.

Once again, material selections were critical drivers of the design. Pries had discovered a rock material called Ortega Stone – a chunky, hard, very uneven material with rough-hewn edges and crusty lines that give the deck and the surrounding low wall a rustic, aged look much akin to the ancient walls of stacked stone found throughout Italy. The decomposed granite surrounding the pool intensified this sense of step-







**TUSCAN TOUCHES:** Context is everything with this project, where the style of the home blends seamlessly with the materials, colors and textures of the watershape behind it. The evocation of Tuscany is complete in every detail, right down to use of rough-hewn Ortega stone to recall the ancient stacked walls found all over Italy.

ping into a time warp.

Because of its rough texture, the stone was *not* the most functional choice for decking and coping material. Again, we discussed this concern with Pries and proceeded with great care to make certain the stone coping was level, smooth, and fulfilled all the structural requirements of any other coping material. (We also discussed her choice of trees without persuading her otherwise, despite the fact that olive and pepper trees are about as messy as any species on the planet.)

Midnight Black slate was chosen for the waterline tile, enhancing the reflec-

tions of the dark pool water but making for somewhat tricky installation in that the large slate pieces had to be placed perfectly under the irregular stone coping to maintain a straight and consistent waterline perimeter. What we achieved is an invisible tile line that leaves only water reflections beneath a naturally textured cantilever.

### WELLSPRING

The most challenging moments of a project are quite often unforeseen at the beginning, and that was the case in this Tuscan-flavored collaboration.

As part of her work, Pries collects a variety of items in Europe that she incorporates into her décor and construction. One such item was an antique water-pump head she'd found at a small farm in France. The pump head was quite old and interesting, and it seemed natural to place it in a visually dominant location.

After a bit of discussion, we built a square, unadorned block structure at the center of the view from the atrium arches at the far end of the pool to support the pump head. That was no challenge, but the spout itself offered its share.

As it turns out, the pump head had









**ANOTHER WORLD:** The authenticity of the Tuscan theme is dramatically reinforced by this small fountain, placed on the opposite side of the home from the pool. It conjures a scene reminiscent of an ancient courtyard where the wellhead was a key fixture and definitely adds to the overall evocation of another time and place.

been constructed with a lead-containing alloy at a time long before medical science (and code writers) knew about the negative effects of certain metals in water. Our desire was to preserve the antique finish and appearance of the pump-head-turned-fountain while allowing it to function safely as a cascade into a swimming pool.

It took some time, but we eventually found an epoxy sealant that we used to coat the inside of the pipes. It was void of any color or texture that would interfere with appearance of the historic piece.

The project featured two additional small fountains – one in a courtyard garden on the opposite side of the house from the swimming pool, the other a

small wall fountain on one of the upstairs balconies. In each case, antique fixtures and materials were used, accenting extremely small flows of water that added subtle spice to the overall composition.

As completed, the simple, rectangular pool is retiring, yet elegant. The bright sun forces the shadows of the sparse, twisted trees onto the dusty granite walkways and still water, while the rough stone and rustic pump head provide the illusion that you're in a place that's grown beautiful over a great span of time.

The joy of these projects for us is that we were involved from the start and were able to offer technical support and construction skill that furthered the design

and execution of these watershapes and their surroundings. The pools themselves are simple, but with changes in elevations, through contrasting and complementary textures, with subtle colors and contrasts, and through the encompassing of architectural styles and art pieces that evoke other times and places, the environments are rich with meaning and fully express the architect's special vision.

Water is an integral tool in such evocations – universal, timeless and vital. When you work with such a talented designer in such exquisite settings, the efforts of the watershaper can seamlessly fuse with the surroundings and bring a quality and character to a project that is both unique and inspiring.





**COMPLETING THE PROGRAM:** From every angle, the pool offers great reflections, wonderful colors and warm textures. The plantings are also in keeping with the Tuscan theme and make the setting seem as though it has been transported to southern California from the mountains of Italy.







Swimming pool designs have come a long way in recent years, says design and project manager Ron Yavis of Sunshine Pools & Spas – particularly when it comes to the high-end, custom-designed, vinyl-liner pools the company specializes in designing and building for some of the continent's most spectacular settings. To make his case for 'custom vinyl,' he profiles a recent project perched high above the bright waters of Canada's Lake Okanagan.

By Ron Yavis

For years, we at Sunshine Pools & Spas have provided high-end, custom swimming pools to a mostly affluent clientele in and around our base in Kelowna, British Columbia. Unlike many readers of this magazine, however, we specialize in satisfying those clients with vinyl-liner rather than gunite or shotcrete pools.

To be sure, pools and spas of any sort are not the first things that come to mind when you think about our area, which is closer to the Arctic Circle than it is to the Sunbelt. But many residents around here do enjoy the good life and want swimming pools to enjoy through the warm summer months.

In serving this market, contractors face dynamic geology and wild swings in temperature from brutally hot to extremely cold. Those conditions impose an unusually wide range of structural stresses and aesthetic limitations on concrete pools – difficulties that have led to vinyl's dominance of our local market.

That dominance (and the cookie-cutter nature of what most contractors have been willing to offer) led us to distinguish our business by designing and building truly custom pools that use liners and steel support structures in unique and interesting ways. A case in point is the project described here: We believe it demonstrates the creativity that can be applied when working with vinyl – and challenges





ingor





The drop from the home to the lake is precipitous, as the switchbacks on the path from the deck to the beach testify (A). It was a gorgeous place to work, but the awareness of safety that comes with rearranging the contours of a cliff was never off our minds (B).

some of the assumptions people tend to make about vinyl-liner pools.

## Big Skies

As is the case with many beautiful pools, the project we'll be examining is all about maximizing the potential of a beautiful setting.

The pool is perched about 140 feet above Lake Okanagan, an expanse of crystal-clear water that stretches for approximately 80 miles between the cities of Vernon and Penticton in the scenic Okanagan Valley. It's a spectacular place and could qualify as one of North America's best-kept secrets, especially among people in the United States who probably have never heard of the region.

For all of its beauty, however, the terrain surrounding the lake is steep, rocky and in many spots not at all conducive to pool construction of any sort.

Our clients own a gorgeous modern-style home set on stilts atop a dizzyingly steep cliff-face lot. It's an exciting space,

with generous decks and windows that allow lines of sight to lake views from almost anywhere indoors or out. Delighted by their surroundings, the homeowners purchased the property next door with the ambition to create an outdoor-living space that would include large decks and a pool.

We became involved with the project in December 2001, by which time the clients had already contacted other swimming pool companies – some gunite specialists, some vinyl. None to date had been willing to tackle the project's radical slope and rocky soil conditions. What was already in hand was a quote from a local engineering firm for construction of a big retaining wall that would be needed to create a flat, useable space for a deck and other structures. The cost for the walls alone: well in excess of \$50,000 (Canadian).

Our firm has much experience with challenging lots and is accustomed as well to working in close coordination with geo-technical and structural engineers to cantilever structures off steep terrains. In

this case, we could see immediately that by integrating construction of the retaining wall with both a deck and a swimming pool, we could significantly reduce the cost of the wall itself and give the clients and their family the swimming pool they wanted so badly.

MSS Engineering of Kelowna was already involved and had conducted extensive site analysis, so we were able to get right down to the business of developing a design.

## Wall Hanging

The lot is nearly vertical in places, but we took advantage of a 21-foot-wide, slightly sloped shelf to stage the construction of the wall that would ultimately create the horizontal space for the pool and deck and also serve as the outside wall of the swimming pool itself.

Obviously, the structures we were going to add would demand a significant foundation. Working on the slope also required some tricky work in setting up



a system of scaffolds that would make wall construction possible – even so, nothing about the project was unexpected or out of the norm.

We anchored the foundation and wall to the hard-pan rock cliff using sections of 1-1/4-inch rebar sunk 15 feet into the rock every 24 inches and grouted into place. The steel supports a reinforced-concrete footing at the base of the wall – four feet deep by eight feet wide and stretching for 56 feet across the breadth of the lot. Atop the footing, we set up a 14-foot-high, poured-in-place concrete wall reinforced with rebar on 12-inch centers – all per the engineering plan set up by MSS Engineering and installed by Gary Tietz of Tietz Construction in Kelowna.

The wall had been angled to accommodate the angled shape of the pool, which was to be 48 feet long in all with widths varying between 12 and 16 feet and shallow areas on both ends of the pool. The area behind the wall was back-filled with crushed rock and sand and compacted according to the engineer's instruction to 98-plus percent.

The only thing truly different to that point was the special three-foot-diameter, stainless steel barrel and flange we roughed into the exterior wall just below the waterline. This would later accept an underwater porthole.

Probably because of the custom nature of the work, local building inspectors took a keen interest in the project and, in reviewing the plans, required several changes that basically amounted to structural overkill. They managed to drive up the cost somewhat, but given the nature of the site, neither we nor the clients minded too much – and we all rested a bit better knowing it would take a monumental catastrophe to cause the structure to move.

Throughout the project, Lorne Lapham at MSS Engineering was extremely helpful in obtaining permits and clearances from local authorities and in making all parties clear on exactly what was being done on site. It bears mentioning that a project such as this absolutely requires the services of a quality engineering firm and that all of our own work is based on reliable soils reports and extensive geotechnical information.



**This is a vinyl-liner pool, but its sub-structure, with a huge retaining capacity rising to a cantilevered edge (C), is as engineered as that of any hilltop concrete pool and had to be built to exacting standards. That was especially true of the porthole (D) – a special, custom touch and a highlight of the project.**



## Simple Elegance

The pool itself features clean lines and light-colored materials that harmonize with the style and finish of the white-stucco home. All fine-tuning and detailing of our initial work was done with close involvement of the clients.

Once we settled all of the aesthetic issues, we developed the final dimensions for the liner designs with the help of John Verschaer of Aquiform Distributors of Richmond, B.C. The liner design was then

forwarded to Mike Koolen of Technician Pacific Industries of Brantford, B.C., the firm that supplies our custom-made liners and pool structures.

The liner was set up as a series of panels cut to a custom template and heat-welded together. The sides are supported by a system of 14-gauge galvanized steel panels and struts, and the bottom is lined with fiber-mesh-reinforced concrete.

Our custom approach to this project is typical of what we do, and we've developed



a great working relationship with Technican through the years. Everything works the same way it does for packaged pools: We hang the 30-gauge liner in a bead-in-track system and then suck it into position using a liner vacuum. The difference comes in the fact that our pool systems are usually anything but ordinary in terms of layout, contours, depths and other custom features.

Vinyl-liner pools typically require a two-foot over-dig at the perimeter to accommodate the construction of the walls. In this case, however, the lot was too narrow and there wasn't much "elbow room" around the pool. This is one of the reasons we elected to use the retaining wall as one of the outer walls of the pool, thus enabling us to move the entire structure out from the slope while increasing available deck space and giving us plenty of room to set up the pool's other walls.

We also enhanced the sense of spaciousness by cantilevering the deck out three feet beyond the retaining wall. The deck itself is reinforced concrete with a simple, smooth finish and is tied into both the retaining wall and pool structure. An aluminum-and-glass rail structure provides for safety without significant visual obstructions – and has a crisp, modern appearance in keeping with the home's design.

The pool features two sets of steps – a corner-mounted set in one shallow end and a straight set of steps recessed into the upslope side of the other shallow end. A sheeting waterfall cascades into one end of the pool from a simple two-foot structure made of marble-faced concrete block and topped by the concrete decking. Three sheer waterfalls also pour into the pool from beneath the slightly cantilevered deck.

Hayward Pool Products of Canada provided the entire equipment package as well as the SuperVision fiberoptic lighting we installed in the pool and waterfeatures. The Novafall was manufactured by Oasis Waterfalls of Florida.

### A Distinctive Beacon

Oddly, the most distinctive feature of this pool is barely visible from the deck: The aforementioned porthole, set below the waterline on the far wall of the pool, is a unique



At night, the pool takes on special dimensions because of its perch high above the water (E). From below, the porthole becomes a beacon when the pool lights are on and can be seen from great distance. Up on deck, the waterfeature at the far end of the pool adds sound and visual interest to the setting (F).







**We cantilevered the deck out beyond the pool to accommodate an aluminum-and-glass railing system that offers safety without obstructing the breathtaking view (G). With its porthole as a signature (H), this custom vinyl-liner pool has become every bit the local landmark we all wanted it to be.**

touch that took some real effort to execute.

The structure for the round, submerged window is all stainless steel and was designed in conjunction with Aero Stainless, a local steel fabricator we use frequently to obtain a variety of custom parts. Originally, the design called for three portholes, but the expense of fabricating them became prohibitive and the pool wound up with only one.

As mentioned above, a stainless steel barrel and flange were roughed into the wall. Before we installed the liner, we applied a bead of sticky, double-sided

440-gasket tape onto the flange mounted on the barrel. We then inserted the 3/4-inch safety glass into the barrel, where it adhered to the tape. Next, we mounted a standard cork gasket onto the glass and the steel barrel.

The liner was hung in place and we sucked the air from behind it using a liner vacuum. This held the liner in position while the pool was being filled to the bottom of the porthole – the weight of the water ensuring that the liner was in its precise, final position over the porthole. Another gasket and stainless steel flange were mount-

ed using a series of stainless steel screws that sandwiched the entire assembly together for a watertight seal. The final step in the process was cutting away the liner on the inside of the flange to expose the glass.

As planned, the porthole has become a signature feature. The side of the pool is visible from the lakeside below: At night, when the interior of the pool is lit, the porthole glows and is visible for many miles.

When we finished and finally filled the pool with water, everyone was pleased by how naturally and easily the pool seemed to set on its perch. The homeowners are thrilled with the project and tell us they've spent a great deal of time entertaining and relaxing in and around the water. (I suppose it's worth mentioning that one of the homeowners is named Cliff, and it wasn't long before the project became known as the "Cliffhanger" – and our client had a new nickname.)

For our part, we're proud to have been able to hang a beautiful swimming pool in a spot where so few other builders thought it could be done.

*We gratefully acknowledge the support and participation of Tim Young, owner of Sunshine Pools & Spas, in preparation of this article.*

## Surface Works

One of the main reasons that vinyl-liner pools are more common than concrete pools in our area is that they are more flexible when it comes to enduring the severe freeze/thaw cycles that prevail hereabouts. That significant practicality aside, however, there are other reasons why we at Sunshine Pools & Spas enjoy working in vinyl.

In recent years, the manufacturers of liners and pool systems have become far more sophisticated in working with custom builders and designers – so much so that I'd argue that the time has passed when vinyl-liner pools can be dismissed as cheap, off-the-shelf, cookie-cutter items that should be considered solely for low-end customers.

Indeed, and as I hope the accompanying article demonstrates, these pools now rival gunite or shotcrete structures in basic visual appeal and offer a viable option when it comes to design and construction of beautiful custom swimming pools.

– R.Y.



# SOUND

DEVELOPING A SIMPLE, RELIABLE SWIMMING POOL

ALARM SYSTEM OFFERS A REMARKABLE RANGE OF TECHNICAL CHALLENGES, OBSERVES ROBERT JECHART OF RJE TECHNOLOGIES – EVEN WHEN YOUR POINT OF DEPARTURE IS YEARS OF EXPERIENCE WITH ULTRA-SOPHISTICATED MILITARY AND COMMERCIAL SONAR TECHNOLOGY. HERE, HE DISCUSSES A FOUR-YEAR PROCESS IN WHICH HIS COMPANY HAS ADDRESSED ITS GOAL OF MAKING WATERSHAPES SAFE FOR FAMILIES WITH SMALL CHILDREN.

# SOLUTIONS

By ROBERT JECHART



Complex problems very often require sophisticated solutions – and that’s certainly the case in developing a swimming pool alarm system that’s able to distinguish between common surface disturbances and children entering the water.

My personal experience in this field began when a good friend of mine, deep in the process of purchasing a backyard swimming pool several years ago, expressed his concern about the safety of his children and frustration about his conclusion at that time that there was no truly reliable pool alarm system.

He eventually decided to install a safety cover – but he was still worried about the periods of time when the cover would be open and suggested I consider applying sonar technology to the problem. Our firm, RJE International, was founded in 1991 and now supplies some of the most advanced equipment for underwater sonar applications for the military as well as the commercial aviation and diving industries.

Four years ago, we established a sister company, RJE Technologies, for the sole purpose of devising a system that would provide another layer of protection for swimming pool owners concerned about the safety of their children. Given our background in manufacturing systems that leave no room for failure, we were confident that we could develop a viable alarm system for residential swimming pools. What we found, however, was that this seemingly simple task was in fact extraordinarily difficult.

## DISCOVERIES

We soon found that the main problem associated with common alarm technologies was their inability to distinguish between real and false alarms. That’s not surprising, considering the huge array of things and incidents that can disturb a body of water, and it made sense for product designers to err on the side of caution by ramping up system sensitivity.

Industry people we contacted confirmed that existing systems performed as designed – but that the levels of false alarms made their clients unhappy and, as a consequence, left these contractors less than excited about recommending alarm systems for their projects.

We knew from our experience with other applications that underwater sonar systems possess the ability to distinguish the physical characteristics of a range of objects, making it seem reasonable that our technology could be set up in such a way that it could tell the difference between a small child and, say, a basketball or a hail storm.

Before we moved onto any technical specifics, we knew that any system we developed would be far more expensive than the comparatively low-cost alarm systems on the market at that time. It was also immediately evident that we needed to create a system that could readily accommodate the variety of conditions found in swimming pools, which in turn meant that extensive technical support and in-field service would be crucial in bringing the product to market.

Above all, we were committed to the idea that any product we brought forth would be developed with the same level of precision and rigorous testing that we had always employed in our work for the military and other high-tech industries.

In other words, we knew we were in for

a long-term process of research and development – and that success would require patience. System design, product development, extensive testing and rounds of problem-solving were all pursued with the advice and support of watershapers – all in all, an arduous process that, from time to time, caused many of us to question the wisdom of traveling down this path.

The process was difficult because reliability is a huge challenge – beginning with the fact that, when it comes to the technology we were beginning to apply, *every* swimming pool is different.

They’re shaped differently with a range of sizes, depths and internal contours. They have an array of associated features, from attached spas and fountains to waterfalls, grottos and slides, all of which can add levels of sonic interference. There are climactic differences and variations in surface disturbances caused by wind and rain. And there are significant issues having to do with the human interface: Any effective system had to be easy to use, easy to live with and completely, effortlessly reliable through a period of several years.

## DELVING DEEPER

As we moved forward, we discovered something important almost immediately: Although the sonar systems with which we were already familiar work very







A big part of our multi-year product-development program had to do with calibrating the detection system so that basketballs and other objects that hit or penetrated the water's surface would not trigger false alarms. We'd set up temporary probes in test pools and repeatedly drop, throw or roll common backyard objects into the water, gradually narrowing the sonar net's sensitivity to the point where it could reliably tell the difference between these impacts and those made by a full-scale model of a one-year-old child dropped into the water.

well in *open* water, the confines of a swimming pool create reflective surfaces and are subject to a great deal of sonar-detectable "noise" from the circulation system and moving water features – not to mention surrounding environmental noise and vibration from street traffic, airplane over-flights and more.

As a result, we had to re-engineer some systems at a very early stage and have since patented some new technologies that effectively filter certain types of noise and isolate the "signature" that is created when a person enters the water.

Another limitation in many pool environments is that a number of "blind spots" are usually created by contours of the interior surface or by objects within the pool itself. This meant that we would have to apply sonar in a way that was completely new and different

from the sorts of open-water applications with which we were familiar and comfortable.

To make a longer-than-anticipated story short, it took us a lot more time than we thought it would to develop a system that accommodated all of the in-pool factors we'd observed. Initially, we thought we'd come to market in about two years. Instead, the process has taken twice that long – and instead of borrowing and reapplying technologies, we found that we were inventing whole new ones.

As we worked, we kept our eyes on a couple of core features that just had to be there. First, we decided early on that the system would have to be fully automated, with its own intelligence and its own database. Second, it had to encompass all of its key operations while

allowing the homeowner to forget about the system until he or she actually uses the pool. In other words, the only interaction the homeowner has with the system is to place it in standby mode when the pool is in use.

Basically, the sonar system uses continuous-wave technology, which allows us to establish a standing wave pattern throughout the pool that serves as an underwater sonar net. The electronic system uses a complex set of algorithms that enable it to recognize various physical characteristics (size, shape, surface reflection) that, when analyzed together, create a reliable signature of a small child.

Our minimum physical threshold is based on an average one-year old child: Anyone that size or larger entering the water when the system is armed will trigger the alarm.

## TESTING THE TECHNOLOGY

Because we were marching into new technological territory, much of our product development time had to do with testing, analysis, debugging and retesting.

## RIPPLE EFFECTS

Sonar works on a principle best illustrated by taking a rock and dropping it into a quiet body of water: Emanating from the point where the rock breaks the surface are waves – in essence, *sound* waves that are created by the rock's action in breaking the surface.

By extension, sonar is the science of manipulating and reading sound waves to locate objects under water. It typically uses extremely low frequencies that are not heard by the human ear.

Modern scanning sonar is an advanced version of this technology that uses an array of acoustic transducers (underwater antennae) to send and receive signals across a wide range of frequencies. This enables the system to "paint" an object in terms of size, shape, distance and motion. As such, it's very similar to radar – but



## WE KNOW FROM OUR EXPERIENCE IN OTHER INDUSTRIES WHAT IT'S LIKE TO OFFER PRODUCTS THAT MUST ALWAYS OPERATE IN LIFE-OR-DEATH SITUATIONS, AND WE KNOW WHAT IT MEANS TO CREATE PRODUCTS IN AN ENVIRONMENT WHERE A SYSTEM FAILURE CAN BE CATASTROPHIC.

In all, we ran some 6,000-plus tests in more than 30 different pools – an extremely painstaking process that yielded a variety of surprises mostly having to do with the way sound waves work within a swimming pool. In those three-plus years of testing, we tried every conceivable way of getting the system to register false alarms and then made adjustments to accommodate what we observed.

Along the way, we attended to a wide range of factors that affect sonar function and found that there were some things we simply could not do. Pools with extremely large waterfalls may not be suited to the use of sonar technology because the flow creates a significant dead spot in that part of the pool.

We found that some types of pool

cleaners present significant problems as well. To work with these sorts of features and devices, we've developed a simple way to program our system so that it switches to a standby mode when cleaners or large waterfeatures are functioning. This happens automatically, so that the homeowner doesn't need to think about it.

In that sense, we learned our limits and know that the system is not for every application. We also came to recognize the limitation of any system that only oper-

ates once someone is in the pool and began to see ours as a last layer of protection among others we recommend for homes where children live.

Key among these recommended systems, where their use is possible, are automatic pool covers. Our system is configured to work in conjunction with covers by activating automatically when the cover is open.

Finally, a great deal of thought and testing went into the sound of the alarm itself. Because modern homes are filled

instead of using electromagnetic waves, the sonar system uses sound waves.

To develop the system described in the accompanying article, we needed to devise an entirely new type of sonar system that uses transducers set in fixed locations within small bodies of water. To our knowledge, this has never been done before in a way that enabled a sonar system to discern something as specific as the physical signature of a small child.

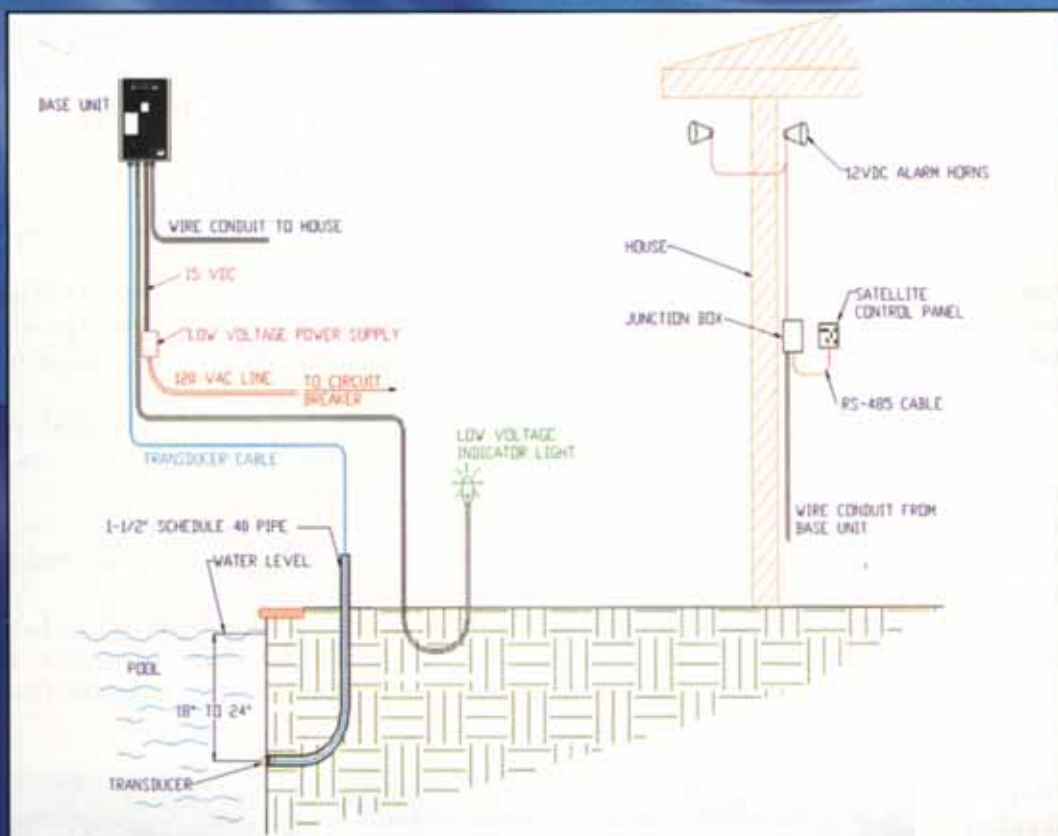
When we engaged ourselves in this process, we thought to borrow military technology and apply it in new ways. Ironically, this new sonar technology may well have applications beyond pool safety that reach back into our military and commercial systems.

–R.J.



Testing with objects that floated (such as basketballs) was only part of the development process. We also used irregular-shaped objects such as plastic rocking horses – things that would actually penetrate the surface and definitely engage the sonar net the way a bobbing child would – with the aim of “teaching” the system to recognize the specific sort of splash signature a small child makes. In all, we conducted more than 6,000 tests in pools of various configurations and applied everything we learned in refining the system.





Once the pool's configurations are set, we can decide how many probes will be required to cover the pool without leaving any areas unprotected by the sonar net – and then specify precisely where they are to be installed. Beyond that, the system is pretty straightforward and goes up much like other remote-control devices – except that our technical staff comes on site to make certain everything is operating to specifications.

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with so many beeps, buzzes and twitters from all manner of electronic devices, we were challenged to come up with something that was distinctive enough to be recognizable among all the other noise-makers around us.

Our solution was to use a sonar sound effect, the sort of ping one associates with sonar as it is used on submarines – and a unique noise that everyone we've worked with has said does indeed command immediate attention.

### NECESSARY SUPPORT

In terms of physical installation, the process is fairly simple. The system, which we're marketing as SonarGuard, consists of transducers (underwater sensors) that are mounted on the interior surface of the pool; a central processing unit mounted on or near the equipment pad; and a wall-mounted user interface that is typically mounted inside the house adjacent to the pool's remote-control system.

The transducers are mounted, typically at 20 to 22 inches below the waterline, in small 1-1/2-inch sleeves that are roughed into the pool during construction and attached to a conduit that runs back to the central processing unit. It's very important that the transducers be mounted perfectly flush with the pool-wall surface and in accordance with a diagram provided by our support staff to ensure proper coverage.

To make the system work, in fact, we need to see a plan before the pool is shot with gunite. Designers or builders send us plans, and we map out the transducer locations. Each pool must have a minimum of two transducers, but larger and more elaborate pools can require more.

We've also developed techniques for installing the system in existing pools, the largest challenge being to conceal the wire in the deck's expansion or grout joints. In these cases, the transducers are surface mounted, and the wiring is run through

a flat, surface-mounted conduit that comes in various colors to match existing pool finishes.

Whether the pool is new or old, we're prepared to provide whatever support is needed to address any problems with the system immediately. To ensure that level of responsiveness, we've taken our approach to market very slowly and carefully. Only recently have we become ready to offer the system on a widespread basis.

In all we do, our aim is to address a difficult safety issue with the most advanced technology available. We know from our experience in other industries what it's like to offer products that must always operate in life-or-death situations, and we know what it means to create products in an environment where a system failure can be catastrophic.

It is our hope that this experience can benefit those who want to enjoy the basic joys of pool ownership with increased peace of mind.

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# ***A Window Into Nature***

***By Jon Mitovich***

Microsoft's corporate campus near Seattle has been the birthplace of much of the world's most significant consumer-electronics technology. When it came time to adorn the ultramodern facility with a water-shape of its own, the scope and complexity of the system was intended to reflect the scale and grandeur of the world's most famous software company – and to fit a circumscribed space as though it had been there from time immemorial.





Take the world's most prolific consumer technology company on one hand and, on the other, its desire to augment its corporate headquarters with a natural exterior environment intended to capture geological processes that span millions of years: It's a collision of present and past, of technology and nature, that is filled with meaning as well as exciting potential.

Those sorts of thoughts and paradoxes were somewhere on everyone's minds as we approached the design and installation of a grand-scale watershape at Microsoft's Redmond, Wash., corporate campus. Our aim: to create a spectacular and entirely naturalistic stream that would serve as a focal point at the entrance to the facility while providing multiple downstream spaces for relaxation and reflection for the firm's employees and visitors.

Designed by Seattle landscape architect/stone artist Robert Murase, the amalgamation of streams, ponds and waterfalls gets the job done while intricately balancing architectural and natural elements. We at Roman Fountains of Albuquerque, N.M., were engaged to design and furnish a recirculation system that would realize his ambitious design.

## Setting the Scene

The plan was to create a natural stream that would originate with a prominent headwaters display near the facility's main entrance before dropping some 50 vertical feet on a 500-foot-long course marked by rockwork and plantings.

Along the way, the stream was to move through a variety of settings and "interact" with several terraces and pathways before terminating in a broad pond below. As the pho-





**The Mother Stone** would appear to be the source of all the water that flows through the system, but that's far from the case: Just 50 gpm flow up and through the stone in a system that has a total flow of 4,500 gpm.

tographs shown here demonstrate, the outcome is a spectacular man-made stream system – and the most interesting watershape of its kind we've ever helped to create.

As is the case with so many projects on this scale, this was truly a collaborative effort. The project team consisted of Robert Murase and our firm as well as a group of major Seattle-based players, including the general contractor, Sellen Construction; the architects, Zimmer-Gunsul-Frasca Partnership; and the engineering consultant, McKinstry Engineering.

Our collective mission was to create an environment that appeared as though it had been there forever – and that the surrounding facility had been built to ac-

commodate nature rather than the other way around. When we first became involved in the project in 1995, the basic design and concept had been set, but several technical and aesthetic details were still being developed.

Over the stream's 500-foot length and 12,000 square feet of surface area, the design called for changes in width, vertical transitions, speed and the basic "behavior" of the water, which was to start as reflective, quiet pools and meandering, quiet streams before transitioning to vigorous, almost violent cascades in some places. It also called for side streams, backwater eddies, a pair of bridges and a host of spots where staff and guests could get up close and ap-

proach the water's edge.

Our specific role at Roman Fountains was to supply water in the proper volume and flow at various points throughout the elaborate watershape to maximize the desired effects. In that sense, our objective was to make the "mechanics" invisible, allowing observers to forget that they were witnessing a carefully controlled environment. In so doing, we specified flows and volumes, pipe sizes, pumps and filters, suction and return fittings and low-voltage controls.

Although the stream is distinctly naturalistic in appearance, Murase included a great many stones and hardscape structures that appear quarried and architectural, giving spots along the stream



a sculptural quality that suggests that people have been at work around the banks of a pre-existing stream. Watching him at work in selecting and placing stones, it became clear that his stream was very much an artistic (and artful) composition.

### Top to Bottom

By design, the stream begins and ends dramatically.

The headwaters emerge from what became known as the “Mother Stone,” a massive granite boulder that sits at the top of the stream adjacent to the entrance of the main lobby. The boulder measures roughly 15 feet across and has a rough-hewn, angular appearance that might be described as geometric. Quarried in Minnesota and delivered by truck, it now has a four-inch hole core-drilled into it that allows a “spring” of water to gurgle and cascade from the top and down its sides into a 30-foot-diameter source basin.

The stream ends 50 feet below in a catch basin that has enough capacity to accept most of the system’s 92,000 gallons of water when it’s turned off at night. This area of the stream features tons and tons of layered, columnar basalt pylons mined in eastern Washington. These dramatic stones were formed by the geology of the Cascade Mountains, but they appear to have been cut by hand. In this setting, they create a fantastic-looking 15-foot fall that spills into the lower pond area.

Between these two points, the stream assumes a variety of personalities. Near the top, the stream meanders and has a very restful temperament, slow-moving and shallow as it leaves the Mother Stone’s basin. There are a few changes in elevation, and those are handled with gentle cascades as the stream winds past a ter-

---

**The watershape** traverses more than 500 feet and drops about 50 feet along the way – a big canvas that gave us latitude to give it several distinctive personalities and set up spaces for different moods and energy levels.







**The design** was intended to convey the impression of a natural waterway that had been there for ages – but that clearly showed the signs of people having lived alongside its banks and exercised some control over where and how it flowed.

race where employees can have lunch or escape their offices to create, reflect or have private meetings.

The middle portion of the stream includes a large pond area that feeds more-vigorous transitions that gain water volume and speed over a series of dramatic waterfalls. The drama increases as the stream flows toward the basalt pylons and lower areas that are not readily visible from the top. The cascade offers an element of surprise for those who venture

down a series of pathways leading from the Mother Stone into the wilder portions of the composition.

Murase has more than 30 years' experience at building large streams for clients throughout the United States and in Japan and the Caribbean. His attention to detail and precise placement of rock, earth and plantings along this particular stream were instrumental in creating the illusion that the buildings, terraces, lawns, plazas, paths, bridges and trees had been placed

around an existing waterway.

He is a truly a master of positioning landscape forms where the obvious works of mankind intersect and blend convincingly with his illusions of nature. Of particular importance here was the attention he paid to edge treatments, earthen contours and lines of sight from the bridges, paths and terraces. It's a tremendously restful environment – and one greatly appreciated by Microsoft's staff.



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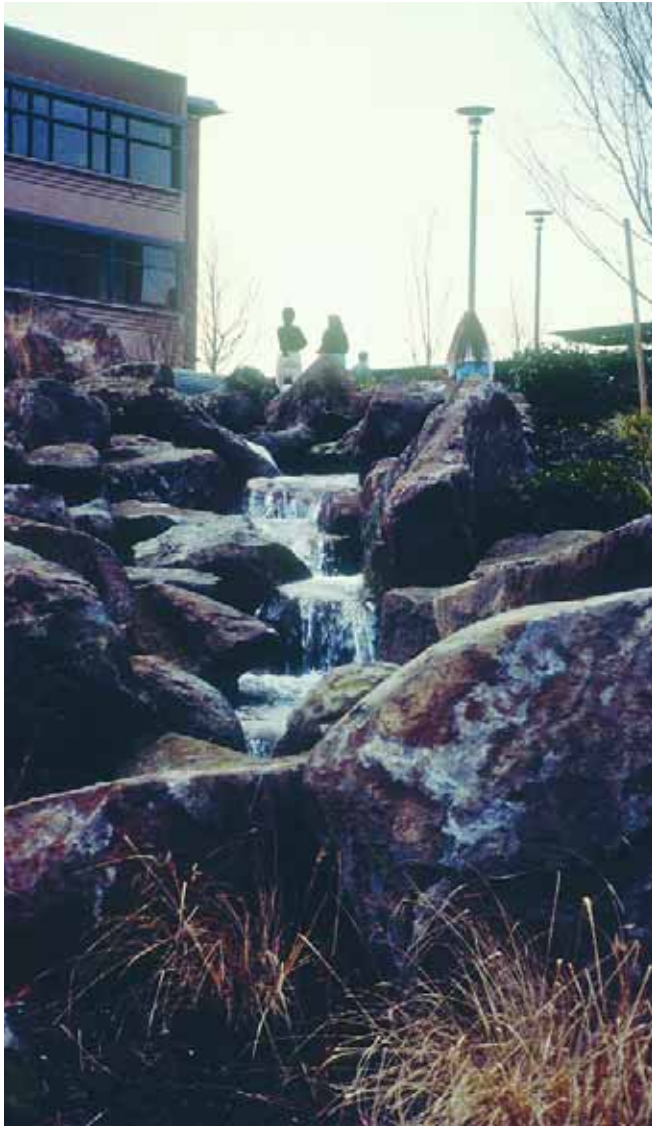
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### Feeding the Stream

As mentioned above, it was our charge at Roman Fountains to stage water effects that made the stream, ponds and falls seem natural while maximizing the drama of the design.

To manage the large volume of water flowing through the system, we divided the hydraulic layout into three separate pumping circuits, one each for the upper, middle and lower portions of the stream. The trick was to draw water from (and return it to) these specific areas in a balanced way that gives the illusion of a single, continuous flow of water.

Each subsystem has a series of elevation drops and a distinct upper and lower basin. Bridges that traverse the stream at its narrowest points cover the intersections of these separate areas.

The first subsystem feeds the Mother Stone and the upper

***It's a tremendously restful environment – and one greatly appreciated by Microsoft's staff.***

basin via a series of submerged returns in the source pool and delivers 1,260 gallons per minute. A 20-horsepower pump drives the circulation through 12-inch suction plumbing and 10-inch return plumbing.

Water is added to the flow at the beginning of the second system beneath the upper bridge. It circulates 1,050 gpm using a 15-hp pump on 12-inch plumbing. Using returns beneath the lower bridge, the bottom section adds another 2,100 gpm for the lower falls. A 30-hp pump powers that loop through 14-inch suction piping and 12-inch return plumbing.

The three systems combine for a total system flow rate of 4,500 gpm. Interestingly, the flow from the Mother Stone, which is the only visible source of water, adds only 50 gpm.



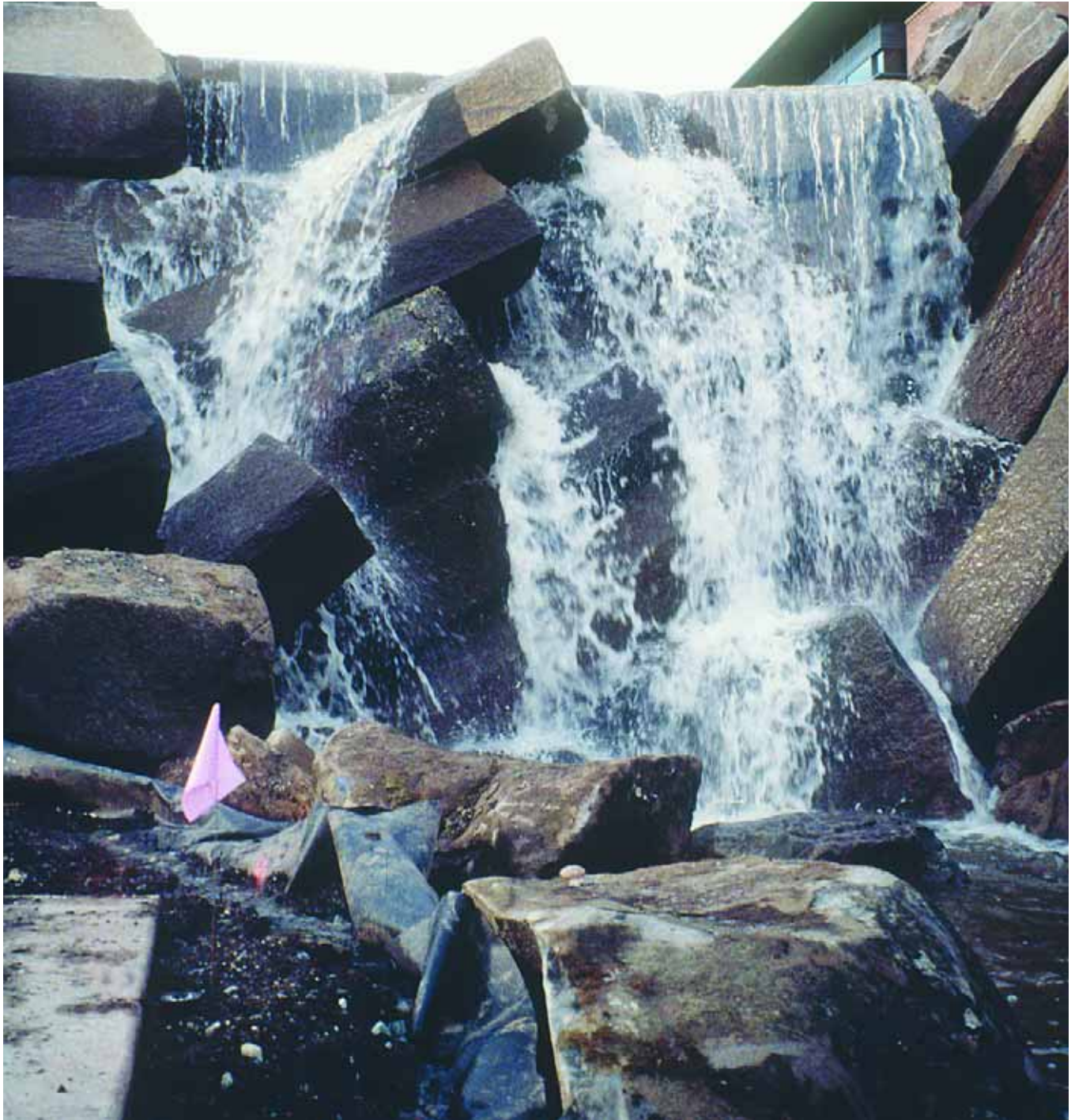
**In its 'wilder' portions, the stream is indeed entirely natural in appearance – perhaps the best expression of the goal of making it seem as though the buildings and bridges were later additions to a superlative natural landscape.**



The rest of the water is introduced at each level through large, recessed sumps with attached diverter plates that are covered with the natural river rock that lines the stream floors. These sump and plate assemblies act as stilling wells that limit turbulence as water is introduced at the various levels.

Water clarity was of absolute importance to the client, so each of the three systems was rigged with filtration and treatment systems capable of keeping the water crystal clear. The system contains no plant or animal life, so the treatment system is more akin to what you'd find in a fountain or a swimming pool.

Each subsystem has a separate, permanent-media sand filter, each a 33-inch tank with a separate, three-horsepower pump that moves 100 gpm – thus giving the entire system a six-hour filtration-turnover rate. The water is treated chemically with ozone and erosion-type chlorine feeders.



**The basalt pylons** of the lower falls offer the most dramatic impression of all with a flow of 2,100 gallons per minute. The pylons look as though they've been sculpted, but they're actually natural formations collected in eastern Washington.



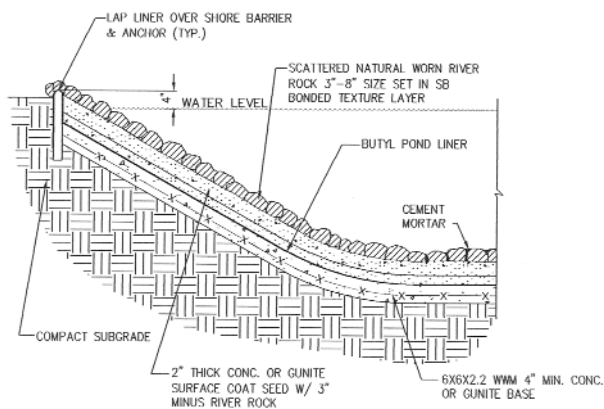
## Under Foot

The entire watercourse was created using concrete-covered vinyl liners covered in turn by small, screened river rocks that are plainly visible through “gin clear” waters the client had requested.

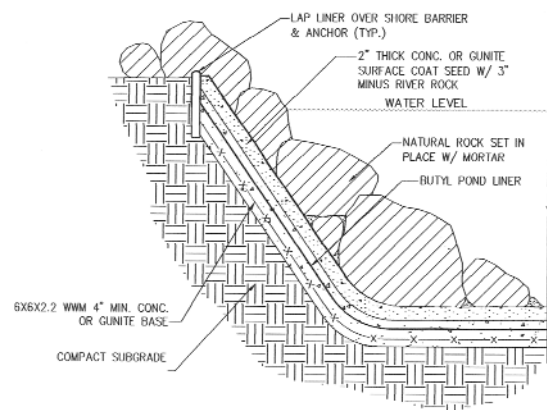
To that end, more than 2,000 tons of carnelian granite and basalt rock was transported to the site and set in place under the direct supervision of landscape architect/stone artist Robert Murase.

In setting up these areas, he followed the construction details shown here to the letter – but infused the resulting water-shape with a spirit and presence and artistry that goes far beyond anything you might see on ink and paper.

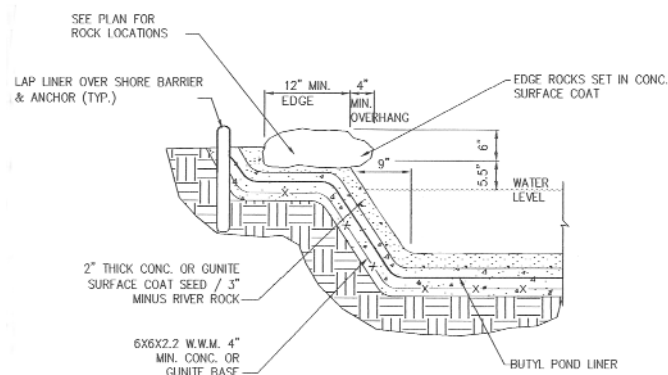
–J.M.



“River Rock” Pond Edge—Typical



“Natural Rock” Pond Edge—Typical



“Rock Overhang” Pond Edge Detail—Typical



The display and filtration systems were assembled at our factory on large skid platforms complete with suction strainers, valves and suction- and discharge-piping headers for quick on-site plumbing connections. Each system was tested, hydraulically and electrically, before shipment. Several control panels also were designed, built and tested at our facility.

On site, electronic water sensors were located strategically along the stream to monitor the water level and add make-up water as needed. For evening viewing, only the Mother Stone and the basalt pylons are lit – in this case with a series of submersible lights burning 500-watt tungsten-halogen lamps.

### Net Results

Our portion of the project spanned eight months. Once we were finished, we spent a bit more time on site to start and fine-tune the system before training Microsoft's facility personnel in the operation and maintenance of the system.

The finished stream accomplished all of the goals identified at the beginning of the project. If anything, the stunning rockwork and changing water effects are more dramatic and interesting than those of us on the design team (with the possible exception of Robert Murase) could have imagined.

I don't know if Bill Gates has spent much time enjoying this remarkable work of art or to what degree he appreciates the achievement outside his corporate front door, but from our perspective, it was an honor to be part of such a talented team and to participate in producing work that has been so fully and beautifully realized on such a grand scale.

**In setting up the recirculating system, our goal with the water was to achieve complete, crystalline clarity. That meant setting up a sanitizing system more similar to one you'd find on a pool or fountain than on a living, natural stream.**



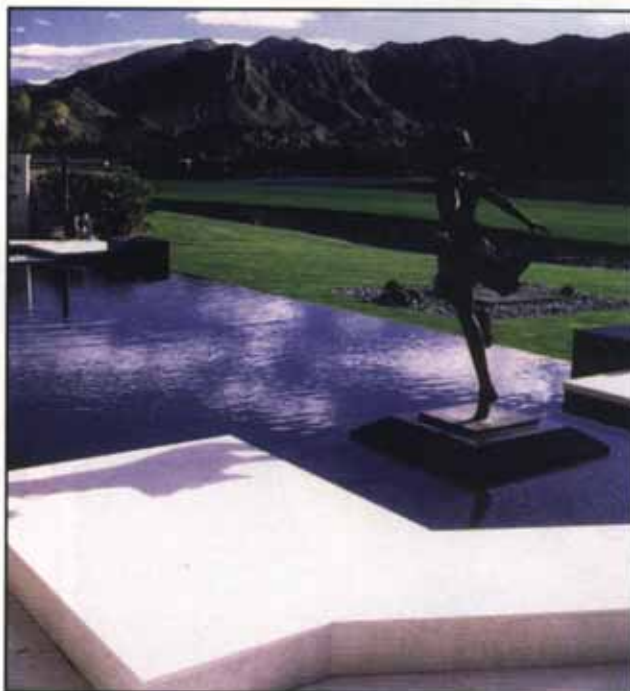


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### SAFETY POOL STEPS

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S.R. SMITH offers its new Safety Pool Step for ladders. Designed for new installations or to retrofit existing fixtures, the step makes any ladder safer with 8-inch-wide treads – twice as wide as conventional steps. The all-white steps are made of tough cyclolac with a slip-resistant design and feature side skirts that keep automatic pool cleaners from becoming entangled in the ladder. **S.R. Smith**, Canby, OR.



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PENTAIR POOL PRODUCTS has added the MiniMax NT heater to its line of reliable, energy-efficient pool and spa heaters. Pre-wired for use with all major automatic control systems, the unit has a thermal efficiency in excess of 82%, fires up quickly and is available in 200,000, 250,000, 300,000 and 400,000

Btu models that use either natural gas or propane. There's also a low-NOx burner option. **Pentair Pool Products**, Sanford, NC.

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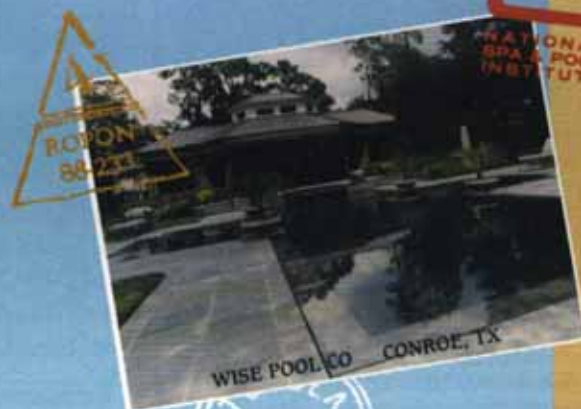
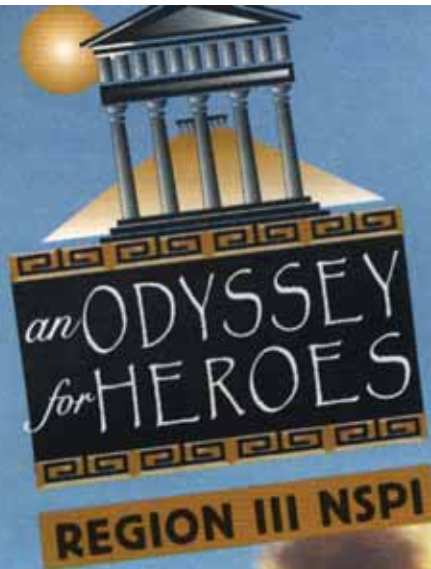
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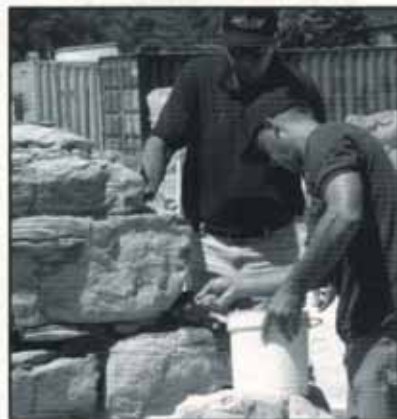
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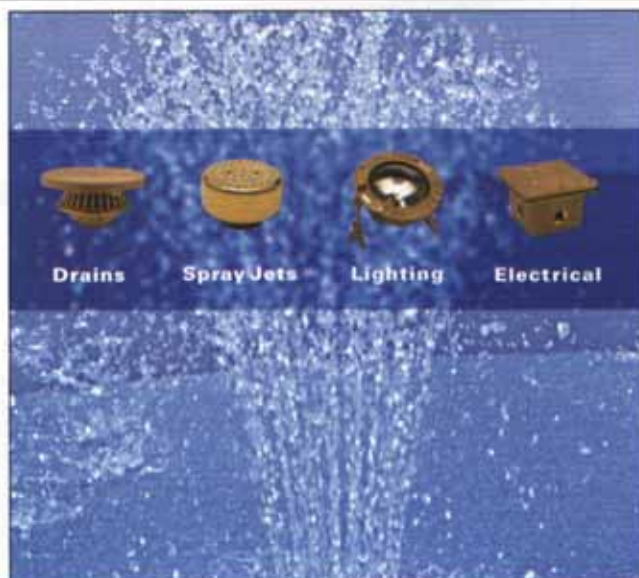
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## Grapes of Joy

In the premiere issue of *WaterShapes* in February 1999, Brian Van Bower's first "Aqua Culture" column invoked the name of winemaker Robert Mondavi, calling him a role model for watershapers everywhere.

It was a *partly* surprising place to start a new column, given the fact that Mondavi is neither a contractor, engineer or designer. But Bower, a wine connoisseur as well as a trailblazing watershaper, made a good case for seeing Mondavi's career as a lens through which we might better understand our own.

At the time, I didn't completely appreciate the connection between Mondavi and the watershaping trades, but I decided a bit later to pick up the book, *A Harvest of Joy*, and spend some time with it. Prepared by Mondavi with writer Paul Chutkow, the 364-page book was published in 1998 by Harcourt Brace.

I know that this is quite a departure from the design-oriented texts I've been covering and that, in a literal sense, it doesn't have anything at all to do with the business of designing and building recreational and decorative waterforms. That said, I'd argue that Mondavi's story presents a magnificent set of lessons that I find enormously inspiring and directly informative. In fact, perhaps more than any other book I've read for the purposes of improving what I do for a living, this is the one that I find myself returning to over and over again.

In the book, the winemaker relates his life story as something of a lead-in to a dramatic account of how he transformed the wine industry in California's Napa Valley and ultimately throughout the entire country. He starts with his family's immigration from Italy to Minnesota, where his father, Cesare Mondavi, became a grocer and saloon owner. When Prohibition hit, the senior Mondavi began importing grapes from California to meet fellow immigrants' need for their own homemade wines – always legal for personal consumption.

Soon after, the Mondavis moved to Lodi, Calif., where the family began to supply the area's small cache of wineries. The book goes into great detail about how much the younger Mondavi learned through this process of helping others make their wines and about how he and his brother, Peter, came to establish the family's first vineyard and winery

operation just after World War II.

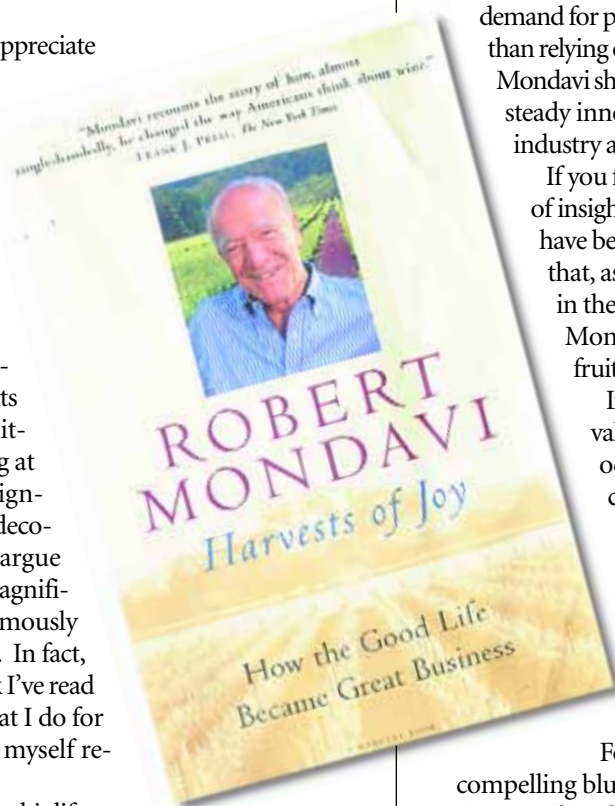
This is a wonderful tale of ambition, hard work and family values and should be inspiring for most anyone. But where the book begins to resonate for watershapers in general and for people in the pool industry in particular, I think, is in later chapters in which Mondavi describes a real revolution in the California wine industry.

Through his own perseverance and insistence on quality, innovation and education, Mondavi single-handedly elevated the industry's standards. He helped bring prestige to the Napa Valley and was instrumental in promoting the area as a tourist stop – all to drive demand for premium wines. In other words, rather than relying on volume sales and mass production, Mondavi shifted the focus to quality products and steady innovation as a means of expanding the industry and elevating its profile.

If you follow this magazine with any degree of insight, you'll know that concepts like these have been repeated time and time again and that, as watershapers, we're all pretty much in the middle of a work in progress. What Mondavi's story gives us is a view of the fruits of those ideas, post-transformation.

In his industry, concepts of quality, craft, value and artistry have overcome mediocrity and put it in its place. It didn't come easy: Mondavi took chances and endured great skepticism, criticism and even ridicule – and certainly not everything he touched turned immediately to gold. Yet he stood his ground and staked his claim in vineyards that gave rise to a flourishing, reshaped industry.

For my part, I see Mondavi's story as a compelling blueprint to those in our industry who are interested in elevating their own careers by creating finely crafted works of art. His book is widely available in paperback and is much less expensive than many of the other publications I have covered to date or will discuss in the future, but its value is like that of a fine wine: It becomes more valuable and impressive every day. **WS**



*Mike Farley is a landscape architect with 20 years of experience and is currently a design/project manager for Leisure Living Pools of Frisco, Texas. He holds a degree in landscape architecture from Texas Tech University and has worked as a watershaper in both California and Texas.*



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